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MALIGNANT LYMPHOMA AND THE URINARY TRACT [*]

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BOSTON

Under the term malignant lymphoma or lymphoblastoma are included several types of neoplastic growths of the lymphatic cells of the body, which, however, are related in that they all have the common characteristics of forming lymphatic cell tumors or infiltrations throughout the body and of being absolutely fatal. Among these are Hodgkin's disease or lymphogranuloma, lympho-epithelioma, lymphosarcoma, and also a first cousin, lymphatic leukemia, which likewise forms these tumors or infiltrations. Some pathologists, including Tracy Mallory [1] of Boston, believe that these are not separate diseases but are different types of what is fundamentally one disease, that is, a malignant lymphatic neoplasm, which on different occasions manifests itself in different ways. One of the chief reasons for believing that this is true is that in many instances a combination of two or more of these types is found in the same case of lymphoma. Therefore, in accord with this belief and for the purposes of this paper, all these types will be considered together and will be referred to under the generic term of malignant lymphoma or lymphoblastoma.

The famous Italian Malpighi [2] gave the first description of malignant lymphoma in the latter half of the seventeenth century. However, the first description of it in more modern times was given, appropriately enough for this meeting, practically 100 years ago and by an English Quaker, Thomas Hodgkin.[3] Since then, more especially in recent times, interest in and knowledge about lymphoma have been increasing, and, moreover, the incidence of lymphoma itself has been increasing, according to one German observer [4] who gives figures to show that in the routine autopsies done in that country it is being found more commonly than formerly, although it is still a comparatively rare disease. What causes it to arise is not known, only that it is apt to start with a slow, painless, firm enlargement of the lymph glands of one region, most often the neck. Occasionally it does not start in glands, but in some organ; this, however, is unusual. The process slowly spreads, and the lymph glands of other regions of the body enlarge. At first there may be no symptoms, but, as the disease progresses, weakness, anemia and cachexia creep over the patient, who may also suffer from more striking symptoms, as the result of the enlarging glands pressing on or actually invading any tissue whatsoever of the body. The patient becomes weaker and more cachetic and miserable and finally dies of anemia and cachexia, or from some pressure effect secondary to the tumor growth, or from a merciful intercurrent infection. The average length of life from the onset of the symptoms to the end is between two and one-half and three years, according to Minot and Isaacs.[5] During the course of the disease, spontaneous remissions may occur, and patients have been known to live for many years.

Naturally a tremendous variety of pains and symptoms may ensue, according to what is pressed on or invaded, and if one does not realize that it is lymphoma that one is dealing with, the pains and symptoms may be puzzling and utterly baffling. To make matters worse, from the diagnostic point of view, there are cases in which the lymphatic tumor formation starts in deeply placed mediastinal, mesenteric or retroperitoneal glands, and there are no enlarged superficial glands to give a clue. These cases are the most puzzling of all.

There are certain additional characteristics of lymphoma. The spleen is very apt indeed to be enlarged and palpable; terrific and persistent itching of the skin frequently occurs, and often there is the remarkable so-called Pel-Ebstein fever, in which the temperature suddenly rises to 101, 102, 103 or 104 F. and stays at that level, with slight daily remissions, for days or even weeks. Then, just as suddenly, it comes down to normal and remains so for a time and then suddenly shoots up again. These febrile and afebrile periods may go on alternating with one another for months.

Naturally, surgical removal has been tried in the treatment of these tumors; but, except in the very early and strictly localized cases, it is now generally considered that roentgen therapy, possibly combined with arsenic, but without surgical intervention, affords the best treatment known. Unfortunately, however, this is only palliative. At first the lymphomatous masses are extraordinarily radiosensitive, melting away after the first treatments, like ice cream on a hot day, and the patient shows great improvement in symptoms and relief of pain. However, like cats with nine lives, the tumors recur, sooner or later, and also keep on spreading, with metastases cropping up in new places. Repeated roentgen treatments bring on repeated temporary improvements, but each time the improvement is shorter and less pronounced, until finally the disease gets beyond control by irradiation and runs its fatal course to the inevitable end.

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[*] From the Urological Department, Massachusetts General Hospital.

[*] Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Mallory, T. B.: New England J. Med. **199:** 96-97 (July 12) 1928.

[2] Malpighi, Marcello: De Viscerum Structura (Bonn, 1666) in Garrison, F. H.: History of Medicine, ed. 4, Philadelphia, W. B. Saunders Company, 1929.

[3] Hodgkin, Thomas: On Some Morbid Appearances of the Absorbent Glands and Spleen, Tr. Medico-Chir. Soc. London **17:** 68-76, 1832.

[4] Lubarsch, quoted by Edelmann (footnote 17).

[5] Minot, G. R., and Isaacs, Raphael: Lymphoblastoma (Malignant Lymphoma), J. A. M. A. **86:** 1185-1189 (April 17), 1265-1270 (April 24) 1926.

As I have said, lymphoma can affect and has affected every single organ and tissue of the entire body, including occasionally, of course, the urinary organs. These it affects just as it does the other tissues, either by pressure on them or by actual involvement. To cite some examples of the gross pathologic conditions found: Nodules in one or both kidneys are very common,[6] and, in a case which I saw recently, almost the entire kidney was replaced by lymphoma. One or both ureters may be surrounded by a mass of lymphoma and pressed on, or even actually invaded.[7] The bladder may be pushed up by masses of lymphoma outside it[8] or may itself be involved.[9] The spermatic cord may be infiltrated[10] and also one or both testicles.[11] Not infrequently the prostate contains nodules[12] and may even be apparently the primary seat of the disease, as in two recent cases. Involvement of the posterior urethra has been reported,[8] as well as of the penis itself,[13] and, finally, because of pressure on the lymphatics, the penis and the scrotum may be enormously swollen and edematous.[14]

The urinary signs or symptoms can be definite enough to simulate one of the more usual forms of urinary disease, or so indefinite that it is well nigh impossible to put a finger on the source of the trouble. Nodules in the prostate usually give no symptoms, but extensive lymphoma of the prostate may give the usual symptoms of prostatism.

With involvement of the kidney, hematuria, which is usually painless, may or may not occur. Obstruction of the ureter may result in a hydronephrosis, which may become infected and give pus in the urine, and sometimes a badly infected, poorly draining hydronephrosis will result, with fever, pain and a tender mass. Occasionally obstruction may give severe attacks of vomiting and pain simulating renal stone colic[15] and, although quite rare, such paroxysms of pain have occurred, accompanied by hematuria, sometimes when obvious signs of lymphoma were lacking. Locke and Minot[16] found 3 such cases in a series of 125. Also, in cases in which a growing mass of lymphoma is making painful pressure in the region of the kidney and thus giving tenderness and spasm on examination, and in which a high Pel-Ebstein fever is added to this condition, the picture looks ever so much more like sepsis about the kidney than what it really is, and makes correct diagnosis extremely difficult. Locke and Minot speak of this, as does Edelmann,[17] and I have seen one such case,[18] in which a necrotic lymphoma of the spleen simulated perinephric suppuration. Pain in the back, sometimes suggestive of renal disease, has been caused by involvement of the kidneys, the vertebrae[19] or the spinal cord, which latter condition can of course, result in a "cord bladder." Edelmann[17] describes pain, apparently radiating from the course of the ureter, but in reality found to be due to irritation by lymphoma of the posterior lumbar nerve roots of the sympathetic or of the retroperitoneal nerve plexus. Ziegler[20] advises that in cases of posterior root pains whose cause is not quite clear one should always think of lymphoma.

And, finally, from France,[21] comes the report of a painful mass in the loin, with a pyelogram giving the picture of a polycystic kidney, which turned out to be a retroperitoneal lymphoma involving the kidney.

Thus lymphoma may present very real problems in connection with the urinary tract. The most important thing in making the diagnosis is to keep the possibility of it in mind, especially in any puzzling or unusual case. If one does think of lymphoma and it is present, it will probably be diagnosed, as one or more of its characteristics will be found. If lymphoma is suspected, and enlarged glands exist, one should by all means perform a biopsy and microscopic examination of a gland, if possible. If, however, such glands do not exist, there may be other clues: the Pel-Ebstein fever, the palpable spleen, the severe itching and the weakness, cachexia, loss of weight and secondary anemia. Of course, a white cell count and a blood smear are of great service in the lymphatic leukemia type. Some consider an increase of the eosinophils in the blood one of the most valuable diagnostic points,[22] doubly so if combined with an increase in mononuclear and transitional cells. However, one should be careful, for intestinal or other parasites may be responsible for an eosinophilia. Esau[22] reports a case of a mass in the left upper quadrant, with eosinophilia which suggested lymphoma. Operation showed no lymphoma but a large echinococcus cyst at the lower pole of the kidney. Two additional diagnostic aids are the therapeutic test of roentgen treatment to see whether the masses diminish quickly in size and the roentgen picture of the chest to see whether there are mediastinal gland masses, which are very frequently present in lymphoma.

I will give the briefest possible outline of four cases taken from the published records of the Massachusetts General Hospital and one from the literature, to serve as examples of the condition under consideration:

Case 1.—A man, aged 48, had sharp pains in the lumbar region, radiating to the testicle, with urinary frequency and dysuria. He lost 40 pounds (18 Kg.) in three months. The cervical, axillary and inguinal glands were palpable. There was a hard mass in the left lower quadrant, palpable by rectum, running into the left flank. Cystoscopy showed marked elevation of the posterior wall and floor of the bladder, between the ureteral orifices. The patient died in seven months. Autopsy showed enormous lymphomatous enlargement of the abdominal and pelvic glands causing this deformity of the bladder, and multiple lymphomatous nodules in kidneys.

Case 2.—A man, aged 52, had had pain of four months' duration in the left upper quadrant under the costal margin. He presented also weakness and loss of weight. Urinalysis and pyelograms gave negative results, but the left kidney was low. No glands were palpable. The patient had a septic temperature. The preoperative diagnosis was in doubt; there was a strong question of perinephric abscess (?) of subdiaphragmatic abscess (?) and of splenic abscess. Operation revealed a large abscess of the spleen. The patient died after two months, and autopsy showed a large lymphoma of the spleen, which was necrotic and purulent in the center.

Case 3.—A man,[9] aged 81, had enlargement of the glands in the neck for three years. He had become too weak to work and had lost much weight. A hard suprapubic mass was palpable. The examining finger felt a hard mass nearly encircling the rectum. The prostate was not palpable. The urine was foul with pus. The patient died in a few days. Autopsy showed lymphoma of the wall of the rectum and of the bladder, with rigid replacement of bladder muscle by tumor, which must have resulted in a large residual urine. Multiple abscesses and marked tumor infiltration of both kidneys were noted.

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[6] Case Records of Massachusetts General Hospital, Case 11491, Boston M. & S. J. **193:** 1069-1071 (Nov. 26) 1925; case 14211, New England J. Med. **199:** 94-97 (July 12) 1928.

[7] New England J. Med. **202:** 1215-1218 (June 19) 1930. Flashman, D. H., and Leopold, S. S.: Am. J. M. Sc. **177:** 651-663 (May) 1929.

[8] Symmers, Douglas: Am. J. M. Sc. **167:** 157-177 (Feb.) 1924.

[9] Footnote 6, second reference.

[10] Barney, J. D.: Personal communication to the author.

[11] Colby, F. H.: New England J. Med. **202:** 657-658 (April 3) 1930. Massachusetts General Hospital: House record No. W. M. 256924.

[12] Baldridge, C. W., and Awe, C. D.: Lymphoma, Arch. Int. Med. **45:** 161-190 (Feb.) 1930.

[13] Baldridge and Awe (footnote 12). Case Records of Massachusetts General Hospital, Case 11112, Boston M. & S. J. **192:** 493-497 (March 12) 1925.

[14] Massachusetts General Hospital: House record 299957.

[15] Footnote 14. Locke, E. A., and Minot, G. R.: Hematuria as a Symptom of Systemic Disease, J. A. M. A. **83:** 1311-1315 (Oct. 25) 1924.

[16] Locke and Minot (footnote 15).

[17] Edelmann, H.: Beitr. z. path. Anat. u. z. allg. Path. **84:** 346-352 (March) 1930.

[18] Case Records of Massachusetts General Hospital, Case 15311, New England J. M. **201:** 228-230 (Aug. 1) 1929.

[19] Footnote 6, first reference. Footnote 14. Massachusetts General Hospital: House Record E. M. 286411.

[20] Ziegler, quoted by Edelmann (footnote 17).

[21] Secrétan, Michel: J. d'urol **27:** 409-417 (May) 1929.

[22] Esau, P.: Arch. f. klin. Chir. **149:** 563-570, 1928.

CASE 4.—A woman,[23] aged 65, had suffered from severe pain in the abdomen and back for six weeks. She was unable to void urine during the day while on her feet, but when she lay down at night she voided plentifully several times. No glands were palpable. A large, hard mass was felt in the left upper quadrant. A diagnosis of lymphoma was made. After roentgen treatment was started, there suddenly developed complete suppression of the urine, lasting seven days. Uremic coma ensued and, although the patient voided on the eighth day, she died the same day. Autopsy showed a huge retroperitoneal tumor, necrotic in places, which entirely surrounded both ureters, giving complete obstruction.

CASE 5.—A woman,[24] aged 38, had had pains in the back, weakness, and swollen glands in the neck for three months. She had lost weight. She gave a history of high fever for considerable periods at a time. Both kidneys felt enlarged and the spleen was palpable. The urine was pink with blood. The diagnosis was lymphoma, including lymphatic leukemia. Despite roentgen treatments the patient died. Autopsy showed lymphomatous involvement of the kidneys.

I have purposely taken these rather marked cases to use as examples, but many cases will be much less obvious and therefore much harder to diagnose correctly.

In conclusion, I would say that as urologists we are bound sooner or later to see some of these cases of lymphoma affecting the urinary tract, and I sincerely hope that we may be able to recognize them, for our own satisfaction and credit in making the diagnosis, to give the patient the best treatment, and to spare him an unnecessary operation done in vain.

SUMMARY

Under the term malignant lymphoma or lymphoblastoma are included Hodgkin's disease or lymphogranuloma, lympho-epithelioma, lymphosarcoma and lymphatic leukemia, all of which have the common characteristics of being fatal and of forming lymphatic cell tumors or infiltrations throughout the body.

A further characteristic is that, by means of the pressure or invasion of these widespread tumors, lymphoma may produce signs or symptoms referable to any organ or system in the body, including occasionally the urinary tract, which may mislead one to miss the fundamental diagnosis of lymphoma.

The relation of lymphoma to the urinary tract in this regard is considered, including the pathologic condition found and the symptomatology exhibited. Points in the diagnosis are taken up, and, finally, a few cases with autopsies are given as examples.

352 Marlboro Street.

ABSTRACT OF DISCUSSION

DR. A. E. BOTHE, Philadelphia: There are several important points in Dr. Chute's paper: First, he gives real evidence from clinical as well as autopsy observations that the lymphomas may give a definite group of urinary symptoms; second, he has grouped the several lymphocytic hyperplasias under one heading and called them lymphomas; and, third, he has stressed the importance of diagnosis so that early roentgen treatment may be instituted. While the literature would indicate that there is some confusion in the classification of the lymphoid lesions, such as Hodgkin's disease, lymphosarcoma, small round cell sarcoma, and lymphatic leukemia, at the same time there are certain characteristics in the typical types that separate them from one another. For instance, the round cell sarcoma shows an active proliferation of the lymphocytes with infiltration into and through the capsule, whereas Hodgkin's disease is more of an inflammatory process with proliferation of the reticulum or endothelial cells and fibrosis. So far as roentgen therapy is concerned, I am sure that the dosage varies for the different types which Dr. Chute has grouped under malignant lymphoma. The dosage that is destructive to one type is stimulating to another. For this reason it is important to differentiate the lymphomas so that effective roentgen therapy may be administered. Dr. Herbert Fox, during a recent visit to Guy's Hospital in London, had the pleasure of studying some of the original material studied by Thomas Hodgkin when he described the disease that now goes by his name. In his analysis of the seven original cases, Dr. Fox felt that case 1 was obviously tuberculosis, case 3 was one of syphilis, case 6 seemed much more like acute leukemia or lymphosarcoma than what is understood to be Hodgkin's disease, and case 5 resembled lymphomatosis. This leaves only cases 2, 4 and 7 as acceptable to the present-day understanding of this disease. This confusion is not surprising because the diagnosis is frequently difficult even with much improved technical methods. In spite of the fact that at times the differential diagnosis is difficult, this is relatively infrequent. Whether these so-called lesions are all types of one disease is still questionable. To me the important part of Dr. Chute's paper is the placing on record of several cases of lymphatic cell tumors which apparently have given rise to a fairly definite group of urinary symptoms. At the same time it must be borne in mind that many other lesions causing anemia and cachexia may give rise to the same symptoms.

DR. J. DELLINGER BARNEY, Boston: I think that Dr. Chute's intention was to call the attention of the urologist to the fact that this disease of lymphoblastoma and myeloblastoma is much more common than has been appreciated before and gives obscure symptoms. Pain in the back, obstruction of urine, and retention of urine which arose in one case with a focus in the brain and nothing in the urinary tract, purpuric spots on the skin, pyuria, and tumor of one or both testes, all or any may occur in some cases. The patients often are operated on, but surgery is always contraindicated except in the rare cases for relief of obstruction or for a biopsy. It takes a great deal of careful search, combined with the help of an internist. A blood smear may or may not show anything; there may or may not be enlargement of the spleen or other glands, but persistent study will, I think, clear up an otherwise obscure diagnosis, and once this is made operation should not be attempted, but roentgen therapy should be applied. In every case the outcome is invariably fatal, perhaps after a few weeks or months or, perhaps, years. If the kidney is involved, the prognosis is worse than if it is not.

DR. ALEXANDER RANDALL, Philadelphia: I remember a case that I had charge of as a student. Studied and lectured on as a typical picture of Hodgkin's disease, which was then considered a benign glandular condition, it was only at the autopsy that characteristic invasive growth was demonstrated. The diagnosis was then changed to lymphosarcoma, and it is a pleasure to hear today this interesting exposure of these unusual neoplasms, whose relationship to one another has always been appreciated as close but difficult of classification. At present we have a young man at the University Hospital with a mass that fills the pelvis. Cystoscopy has been impossible. Through palpation by rectum we think we can distinguish the prostate free from the tumor. The cystogram shows the bladder like a tam-o'-shanter above this mass. Dr. Ferguson has illustrated the possibility of the use of needle puncture of a tumor for biopsy specimens and diagnosis, as he is demonstrating it in the Scientific Exhibit, and we have just received the diagnosis in this case of epidermoid carcinoma by this means. This constitutes a valuable adjunct to the diagnostic methods in these deep-seated tumors.

DR. RICHARD CHUTE, Boston: I thank Dr. Bothe for speaking of what I have heard before but never knew accurately. He brings up the connection between syphilis and Hodgkin's disease and generalized tuberculosis with enlarged glands. In syphilis of course one has the blood reaction and in tuberculosis one can make biopsies. I think the new method Dr. Randall spoke of will be of much assistance in this disease.

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[23] Footnote 7, first reference.
[24] Footnote 6, first reference.

PUBLICATIONS OF INTEREST TO THE OTOLARYNGOLOGIST FROM 1925 TO 1931

CHAIRMAN'S ADDRESS *

THOMAS E. CARMODY, M.D.
DENVER

The literature of otolaryngology, while increasing slightly in volume since 1925, has shown some variations and increased interest in a few subjects.

During this period the activities of the American Board of Otolaryngology assumed importance; the first examination was given in 1925. Dr. H. W. Loeb,[1] the secretary of the board, in March, 1925, announced the ideals of the leaders in the various American societies, under whose auspices the board was organized, as follows:

> The object of the corporation shall be to elevate the standard of otolaryngology, to familiarize the public with its aims and ideals, to protect the public against irresponsible and unqualified practitioners, to receive applications for examination in otolaryngology, to conduct examinations of such applicants, to issue certificates of qualification in otolaryngology and to perform such duties as will advance the cause of otolaryngology.

The report of the board shows what has been accomplished.

Another achievement, of which we may feel justly proud, is the initiation of publication of the *Archives of Otolaryngology,* which, while not promoting or encouraging an increase in the number of papers, has, through an able editorial board, stimulated and encouraged improvement in quality.

The most remarkable feature of the literature of otolaryngology is that relating to new diseases, or entirely new angles on treatment of already known pathologic conditions.

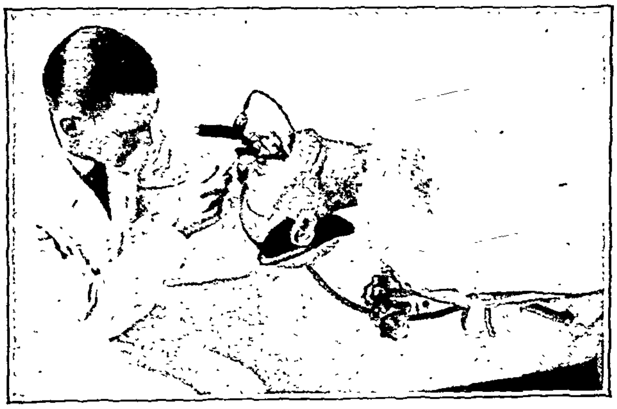

Fig. 1.—Bronchoscopic manikin of Hasslinger.

Agranulocytic angina has been responsible for many papers during this period. The first of importance was one by R. J. Hunter,[2] appearing in May, 1926, although twenty cases had been reported in the three previous years. We have learned much about this pathologic entity since that time, but we are as yet almost if not entirely helpless in its treatment.

A small number of unusual pathologic conditions have been reported, which, since they are rare, will be mentioned:

"Some Uncommon Types of Neoplasms About the Head," reported by J. C. Beck.[3]

"Psammoma (Brain Sand Tumor) Removed from Ethmoid and Sphenoid Areas," reported by H. M. Goodyear.[4]

"Xerostomia" four cases, reported by W. B. Chamberlin.[5]

"Primary Blastomycosis of the Tongue," reported by J. H. Childrey and G. B. New.[6]

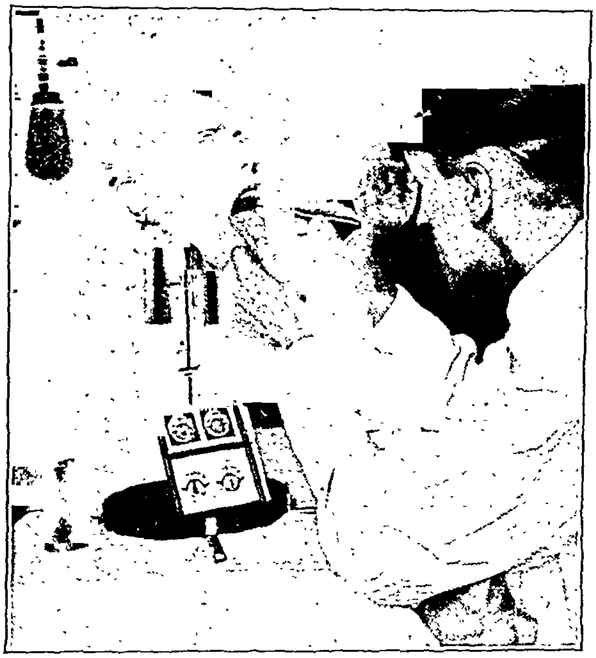

Fig. 2.—Laryngologic manikin showing method of examination.

Regarding pathologic studies of more general interest, I mention an article by B. J. McMahon[7] on the changes in the mucosa and in the bony walls of the sinuses and mastoid, which have many points of similarity in their variation from normal. He found that the most important changes were taking place in the mucosa; changes in the bone were less frequently found and not considered by him of as great importance. His observations agree in the essential points with those of Kistner[8] and myself,[9] with the exception of the bacteriologic results in the tissues studied by Kistner. The fact, brought out by Kistner, that bacteria found in the deeper layers of the lining mucosa differ markedly from those found in the sinus cavity has to some extent influenced our mode of treatment.

Two important contributions have come from the laboratory of Dr. H. P. Mosher. The first concerned the regeneration of epithelium in the sinuses, after removal of the entire membrane, which was ably done and presented by McGregor.[9a] The other, only recently published, by George E. Shambaugh, Jr.,[10] shows a thorough study and well analyzed work on the basement membrane of the mucosa of the upper respiratory passages.

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* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Loeb, H. W.: Progress in American Laryngology, Ann. Otol., Rhin. & Laryng. **34:** 1 (March) 1925.

[2] Hunter, R. J.: Agranulocytic Angina, Laryngoscope **36:** 348 (May) 1926.

[3] Beck, J. C.: Laryngoscope **40:** 511 (July) 1930.

[4] Goodyear, H. M.: Ann. Otol., Rhin. & Laryng. **39:** 463 (June) 1930.

[5] Chamberlin, W. B.: Xerostomia, J. A. M. A. **95:** 470 (Aug. 16) 1930.

[6] Childrey, J. H., and New, G. B.: *Primary Blastomycosis of the Tongue,* Arch. Otolaryng. **12:** 184 (Aug.) 1930.

[7] McMahon, B. J.: Ann. Otol., Rhin. & Laryng. **38:** 732 (Sept.) 1929.

[8] Kistner: Tr. Am. Laryng., Rhin. & Otol. Soc., p. 180.

[9] Carmody, T. E.: Tr. Am. Laryng. A., 1926, p. 184.

[9a] McGregor, G. W.: Arch. Otolaryng. **8:** 505-519 (Nov.) 1928.

The first of these articles apparently proves that regeneration can be complete in certain areas and has been the stimulus for much of the work that has been carried on since its completion. The latter article, while not to be considered as absolute proof, at least suggests that the basement membrane, as found in the respiratory tract, is largely or entirely a product of inflammation.

The advance in knowledge of allergic reactions has been noteworthy, with an increase in the number of publications as greater numbers of otolaryngologists have become interested. The papers covering this subject which relate to hay-fever and asthma are of especial interest and value but are frequently linked with observations on operative technic which sometimes add to and at other times detract from the value, since the author is most frequently overenthusiastic either for or against operative treatment.

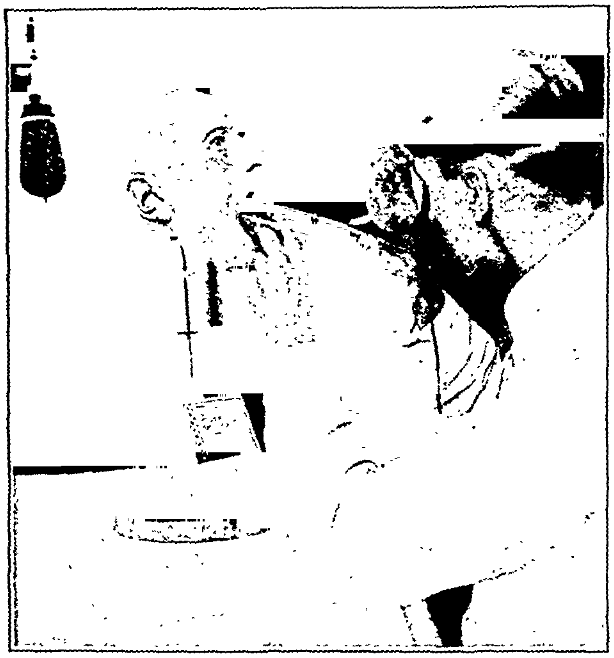

Fig. 3.—Laryngologic manikin showing method of application to different points of the larynx.

Kahn[11] treats the subject exhaustively, from the standpoint of the asthmatic patient, and attempts to coordinate allergic and operative treatment.

The advance in diagnostic methods has kept pace with that in pathology. The use of radiopaque substances in the sinuses, introduced either by injection or by the creation of a vacuum, as suggested and carried out by Proetz,[12] has not only been an aid in diagnosis but has also given much food for thought in our study of gross pathologic changes. Cytologic examination of the fluid contained in accessory nasal sinuses is a distinct advance in diagnosis and, as carried out by Sewall[13] and Dean,[14] gives much valuable information on hidden pathologic conditions.

Technic, in relation to diagnosis and treatment and also in experiments as to the cause of injury and the source of infection, has increased our percentage of correct diagnoses and improved our results in operative treatment.

The manikins of Hasslinger[15] have many advantages over the older methods in the teaching of laryngology and bronchoscopy.

The anatomic investigations of Naftzger[16] have disproved old theories and given us more correct ideas regarding treatment of fractures of the bones of the face.

Roentgen treatment of adenoid and lymphatic tissue, in association with surgery, is being more widely used, but the much vaunted use of x-rays and radium for the destruction of tonsils has fallen almost into disuse.

The use of the endothermic knife or needle for the destruction of portions of the tonsils, by those who are either too timid to remove the tonsil surgically or who wish to play to that element of the profession or laity who want something new, has done infinite harm by sealing infection in the tissues, for in most cases the tonsil is not removed or completely destroyed.

It is impossible to mention more than a few of the many good papers that have been published in the last few years, but it is hoped that this brief outline of the literature of our specialty during that time will stimulate us all to increased effort.

227 Sixteenth Street.

THE ANEMIAS OF INFANCY AND EARLY CHILDHOOD

SOME OBSERVATIONS [*]

LEONARD G. PARSONS, M.D., F.R.C.P.
Professor of Diseases of Children in the University of Birmingham
BIRMINGHAM, ENGLAND

Some three years ago I had the honor of receiving a distinguished American pediatrician as my visitor—Dr. Edwards Park of Baltimore. Among the many interesting things he told me during his all too short stay was an enthusiastic description of certain experiments on the production and cure of nutritional anemias in rats, which were being carried on at the University of Wisconsin, by Professors Steenbock and Hart. I was so impressed by what Dr. Park told me that I made myself familiar with this work and determined to attempt to apply some of the investigations to clinical medicine. It seemed to me therefore only fitting that when you did me the great honor to invite me to be your guest I could in a very small way best repay your courtesy by offering to Dr. Aldrich the subject of anemia as one of two alternatives for my address to you. Although he did not know the reason that actuated my suggestion of anemia, yet he chose it; but when I began to write this paper my pen was struck dumb with horror at my temerity, because I found I had so little to say that is not common knowledge! I ask, however, your clemency because I am sure you will all sympathize with me; and those of you who have attempted work on any big subject, however straightforward it appears to be, will know that so much time is spent on the preliminaries, on clearing away the undergrowth so that you can see the thing that you wish to investigate, that the months slip rapidly away without anything very definite having been achieved.

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[10] Shambaugh, G. E., Jr.: The Basement Membrane in the Mucosa of the Upper Respiratory Passages, Arch. Otolaryng. **13**: 556 (April) 1931.

[11] Kahn, I. S.: Wisconsin M. J. **27**: 402 (Sept.) 1928.

[12] Proetz, A. W.: Ann. Otol., Rhin. & Laryng. **37**: 806 (Sept.) 1928.

[13] Sewall, E. C.: Ann. Otol., Rhin. & Laryng. **37**: 642 (June) 1928.

[14] Dean: Ann. Otol., Rhin. & Laryng., June, 1928.

[15] Hasslinger: Personal communication to the author.

[16] Naftzger, J. B.: Ann. Otol., Rhin. & Laryng. **37**: 486 (June) 1928.

[*] Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[*] Dr. E. M. Hickmans carried out the biochemical investigations mentioned in this paper and Dr. Margaret Thorpe was responsible for all the hematologic investigations and many of the clinical examinations. The Medical Research Council defrayed the expenses of the investigation.

The remarks I have to make are based on a study of fifty sick children suffering from anemia, not a very large number, but sufficient, I believe, to draw certain conclusions, and I propose to deal particularly with nutritional and constitutional anemias.

CLASSIFICATION

While the usual classification of the anemias in adults cannot be regarded as completely satisfactory, it is only rarely that an individual case cannot be placed in some recognized group the members of which show symptoms, a blood picture and a course which separate them off fairly sharply from other groups. On the other hand, in children and particularly in infancy the difficulties in classification are much greater and the younger the organism the more heterogeneous are the manifestations of disease affecting the blood. There is obviously some essential difference between the hematopoietic system of the fully grown and that of the growing organism and it is probable that the explanation is that the hematopoietic system shows that instability which is so characteristic of all the systems in infancy. Thus it is significant that primitive forms of nucleated red cells—megaloblasts and macronormoblasts—appear in the circulating blood of anemic infants far more frequently than in older children and adults; a fact which suggests that prenatal hematopoiesis can more easily be called into play, for although the change over from the embryonic depots of blood formation takes place during the later months of gestation, this change is a very gradual one and continues throughout the early months of postnatal life. In the infant as compared with the adult there is very little reserve bone marrow space, and the readiness with which these extramedullary centers can be called into play is probably a mechanism to compensate for this; in other words, there is not the sharp separation off of the bone marrow as *the* blood cell factory. For these reasons the occurrence of myelocytes in infancy has not the same significance as their appearance in the circulating blood of the adult.

A classification of the anemias solely according to the blood picture is therefore, if not impossible, valueless, for a similar blood picture may be given by cases which have quite different pathogeneses. Indeed, even during the course of the illness the blood picture may change; thus a case at one time may show marrow activity and produce the blood picture described by von Jaksch and later on show the characteristics of the chlorotic anemia of French writers. For the same reason, at any rate in the present state of our knowledge, it is inadvisable to divide anemias into primary and secondary groups but rather to regard all infantile anemia as secondary either to some disturbance in the child's health or to some defect in its diet. In other words, the anemia is a response on the part of the blood to some form of injury, and it is possible, as suggested by Cooley, that the type of response may vary in different races and that herein lies the reason, for instance, of the limitation of sickle cell anemia to the Negro race.

For the purposes of classification the pseudoleukemia of von Jaksch is regarded as a syndrome which may arise from many different causes. On the other hand, the true leukemias are not included, since they are relatively unimportant in the anemias of infancy, being probably neoplastic diseases and not a response of the blood to noxious stimuli.

Bearing these points in mind, the anemias of infancy may be thus classified:

1. Those due to a defect of nutrition.
   - (*a*) Simple or dietetic anemias.
   - (*b*) Endogenous or constitutional anemias.
2. Those due to infection.
3. Those due to abnormal hemolysis.
4. Those due to a combination of one or more of the preceding causes.

SIMPLE NUTRITIONAL ANEMIA

The existence of a nutritional or alimentary anemia in artificially fed infants has been stressed for many years by workers on the continent of Europe. Nevertheless only scanty attention has been paid by British workers to this form of anemia and the textbooks have little to say on the subject, which is unfortunate because the condition is relatively prevalent. Within the last five years, however, important observations have been made by Dr. Helen Mackay on London babies. The babies she examined were not ill but were infants of the type usually found at a welfare center, and as a result of her investigations she came to the conclusion that most artificially fed London babies were anemic. The presence of anemia was not determined by cell counts but by hemoglobin estimations, and on doing this at monthly intervals it was found that there was a sharp fall to about 65 per cent at from 2 to 3 months of age, a rise to about 70 per cent at from 5 to 6 months of age, and then a steady fall through the rest of the first year, reaching about 65 per cent at the end of twelve months; from this time until the fifteenth month the fall continued and then the curve began to rise. In breast fed children the fall was rather less marked and differed in that the hemoglobin began to rise after weaning at 9 months. An interesting comparison with similar observations made by Drucker on healthy babies in Copenhagen showed a very different state of affairs, the infants being free from anemia. On the assumption that the fall in hemoglobin was due to a deficiency in iron, the double salt of iron and ammonium citrate was administrated in 4½ to 9 grain (0.3 to 0.6 Gm.) doses daily, with the result that the fall did not occur. From many similar observations it was concluded that the anemia was the result of iron deficiency; that it was not due to one particular form of feeding, and that it was most marked in babies who were small at birth and who, relative to their initial weight, increased in size rapidly. One other point of importance should be mentioned; namely, that in the presence of infection the response to iron was not rapid, and, conversely, it appeared certain that resistance to infection was lowered by iron deficiency.

It is clear that this large group of anemic but otherwise healthy children can be regarded as constitutionally normal, and it therefore seems reasonable to conclude that the cause of the fall in hemoglobin is to be sought in the absence from the diet of certain substances which are essential for hemoglobin synthesis. Again, since the fall occurs late in the lactation period, it is probable that the infant is born with a store of this substance or substances which is gradually used up during this period, and the explanation of the difference between Copenhagen and London children is possibly to be sought in the superior antenatal maternal diet of the former.

As early as 1889, von Bunge showed that milk had a very low iron content and that the amount of iron present in the liver and spleen of young mammals was highest in the new-born and at a minimum at the end of the suckling period; that is, that during the milk period these iron depots served as sources for the building of hemoglobin. The guinea-pig is an interesting exception to this rule, but the young guinea-pig almost at once begins to eat any foodstuff within reach and is dependent on an exclusively milk diet for only the first day or two of life. The storage of iron in the fetal depots has been shown by Nicholas to take place mainly during the final third of pregnancy and to be most rapid during the early part of that period. It is therefore a logical deduction that milk feeding prolonged beyond the normal weaning period will lead to still further lowering of the hemoglobin level.

The correctness of this deduction was first demonstrated experimentally by Abderhalden, who in 1899 not only produced an experimental nutritional anemia but also demonstrated that the addition of inorganic iron did not bring about any increase in hemoglobin. Commenting on this result, Abderhalden says, "The mere fact that the addition of iron to nutriment poor in iron does not have any distinct influence upon the formation of hemoglobin in no way speaks against the participation of inorganic iron in the synthesis of hemoglobin in the case of normal nutrition, but it indicates that other building material is wanting as well as the iron."

I think that in all fairness it can be said that nothing of any importance to clinical medicine has been added to the knowledge of experimental nutritional anemia from the time of the enunciation of this hypothesis by Abderhalden until the extraordinarily able series of experiments on "Iron in Nutrition" were started in 1925 at Madison, Wis., by Hart, Steenbock and their colleagues; experiments that have created an intense interest in the subject of nutritional anemia on the part of pediatricians in many countries. The results of their investigations help to explain the apparently diametrically opposed views of the clinician and the physiologist; on the one hand Helen Mackay, who states that the simple addition of iron in the form of iron ammonium citrate to the diet cures simple nutritional anemia in infants; and on the other hand Abderhalden, who held that hemoglobin can be built up from inorganic iron in the diet only when accompanied by some other factors.

Rôle of Iron and Copper in the Building of Hemoglobin.—Time will not allow me to mention all the experiments performed on rabbits and rats by the Madison workers and doubtless all are familiar with them, but I may perhaps be allowed to mention a few of the results. Finding that anemia was cured by adding to milk the ash of lettuce and cabbage, they drew the deduction that the cure was due to the presence of inorganic material; finding also that anemic rats given liver remained anemic whereas if ferric chloride was added they were cured, and knowing that liver contained copper, the idea of adding copper salts to the iron salts occurred to them. They then found that feeding pure inorganic salts of iron to anemic rats produced no effect but that impure iron salts produced a cure, as did pure inorganic salts of iron when combined with small amounts of copper. Trial was made of many other inorganic substances and all metals known to occur in foodstuffs, but copper alone gave never failing results. They therefore came to the conclusion that small amounts of copper were necessary for hemoglobin synthesis.

Elden, Sperry, Robbins and Whipple, working with anemic dogs, came to the conclusion that a balanced salt mixture rather than copper alone was essential for hemoglobin regeneration, and, in a recent investigation of an anemia in suckling pigs, Hart, Elvehjem and Steenbock found that feeding of iron alone stimulated hemoglobin synthesis as well as when the iron was supplemented with copper. They point out that there are two possible explanations of this. First, the iron reserves in the young pig may be depleted and, as soon as this element is supplied, hemoglobin synthesis takes place without the addition of copper. Second, the pigs were not placed under as restricted conditions as were the other animals used in their earlier work and were probably able to acquire small amounts of copper, for it must be remembered that copper probably acts as a catalyst since only small amounts of it are required to enhance the work of iron, thus furnishing another example of the importance of the "little things" in nutrition.

McHargue and his co-workers have found that at birth the livers of calves contain more copper than those of older animals and, further, that the copper content of infantile liver is about 20 mg. per kilogram of wet tissue, compared with 9 mg. in the adult. Morrison and Nash found that the average copper content per kilogram of fresh tissue of twenty-five infants was 24 mg., or about six times the average value for seven adults. We have estimated the amount of copper and iron in carcasses of rats from birth to the weaning period and although the absolute amounts of these elements rise (chart 1) there is a continuous fall throughout the lactation period, when the amounts are expressed as percentages of the dried weight of the animal, which is the important comparison to make (chart 2). The copper and iron content of the liver has also been estimated in a small series of infants and over a shorter period of time. Here again the fall in both elements occurs (chart 3). These facts are obvious if reference is made to the charts. The average iron content of the infant liver was 280 mg. per kilogram of fresh tissue and 29 mg. of copper.

With regard to the effect that the maternal diet may have in the production of nutritional anemia, a point to which reference has already been made, it is of great interest to note that in the work on anemia of young pigs it was found that the feeding of considerable amounts of iron and copper to the sow did not delay the development of anemia in the suckling pig.

In connection with this question of storage of iron and copper during fetal life, it is significant that anemia is so common in premature babies and in twins. This anemia may be of a simple nutritional type but is not infrequently complicated by some "constitutional defect" which delays cure, and it may be due, indeed one can go further and say probably is due, to deficient storage before birth of copper or some other undiscovered substances essential for hemoglobin synthesis in the growing organism.

Rôle of Amino-Acids in the Building of Hemoglobin.—So much for the moment as to the necessity for the presence in the food and for the fetal storage of inorganic constituents required for the synthesis of hemoglobin. Let us now turn for a short time to the question as to whether there are any *organic* constituents which it is essential to supply in the food. Hemoglobin consists of a protein of the histone class called globin united with hematin. Now globin is composed largely of histidine, an amino-acid containing the iminazole nucleus, whereas hematin consists of iron in association with substituted pyrrole groups. Since it has not yet been proved that the body can synthesize either the iminazole or the pyrrole nucleus, until such a synthesis can be proved the only possible source of their origin must be from the proper digestion and absorption of an adequate dietary. That normal digestion and absorption are important factors in the production and cure of anemia has been proved conclusively in the case of pernicious anemia by the work of Castle, who has demonstrated the existence in it of a specific type of gastric defect. The importance of these factors has been particularly shown by his most recent observation, in which a marked reticulocyte response was obtained in a patient suffering from pernicious anemia when an extract of liver (fraction G) was given intravenously, whereas no such response was obtained when it was taken by mouth.

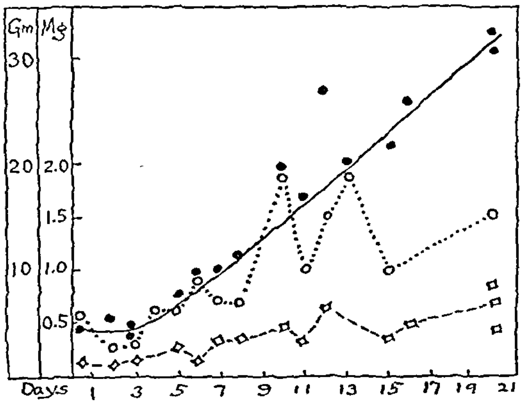

Chart 1.—Amounts of copper and iron present in the carcasses of rats from birth to the end of the weaning period. The solid line and dots indicate body weight in grams. The circles and dotted line indicate actual weight of iron, in milligrams, in body of rat. The squares and the broken line indicate the weight of copper × 10, in milligrams, in body of rat.

In the year 1923 Hirasawa, and Matenoka and Hirasawa stated that tryptophan stimulated hemoglobin production in various forms of experimental anemia in the rabbit. Last year Fontès and Thivolle found that the subcutaneous injection of tryptophan or histidine, or, better still, of both these amino-acids, led to an increase in hemoglobin and red blood cells in dogs and rabbits; further, that rats fed on a diet deficient in these substances became slightly anemic. These observers then tried the effect of a daily injection of 100 mg. of tryptophan and 200 mg. of histidine in cases of pernicious anemia and found that the anemia was apparently cured. Drabkin and Miller, in a paper published this year, record the cure of milk anemia in rats by the addition to the milk of pure amino-acids which were copper free and contained only a trace of iron. Of the amino-acids used, arginine, glutamic acid and their salts were found to be most effective for the regeneration of hemoglobin. They point out that these results, taken together with those in which the anemia was cured by giving iron or iron and copper, are probably due to the fact that in the nutritional anemia of rats both iron and organic factors are necessary for the actual synthesis of hemoglobin.

Before leaving this experimental work I should like to mention two other interesting facts that have emerged from our investigations. Rats suffering from nutritional anemia are cured of their anemia by the addition of iron and copper to their milk diet, but so far we have not succeeded in obtaining a second generation, even after the anemia is cured, if the rats are kept on the same diet. If, however, they are not kept too long on a milk, copper and iron diet but are put on a stock diet, they become capable of reproducing. Now we have found that yeast added to the diet of milk anemic rats not only cures the anemia but has permitted the breeding of a second generation while still on the diet of milk and yeast.

The condition of the progeny is of the greatest interest. They are small and anemic but very lively. One rat of a litter of eight had a hemoglobin of 15 per cent at the end of the weaning period and when killed was found to have an enlarged spleen. Another rat of the same litter died and its spleen was about three times the normal size. Yet another rat showed a hemoglobin of 12 per cent, a white cell count of 14,600 and a red cell count of 3,340,000 per cubic millimeter, giving a color index of 0.2; the stained film showed marked irregularity in the size and shape of the red cells and a large number of nucleated forms. It is interesting to note that an estimation of the mother's blood on the same day showed a red cell count of over 5,000,000 per cubic millimeter and a hemoglobin percentage of 96.

We have therefore succeeded in producing in rats a congenital anemia with splenomegaly very similar to, if not identical with, the group of cases in children which I shall describe under the head of "constitutional nutritional anemia." I regret that I have not yet any data of the effects of treatment on these congenitally anemic rats.

Brewers' yeast, as usually grown, contains considerable amounts of copper and iron, and the presence of these is a possible explanation of the cure of the anemia. My colleague, Miss Hickmans, therefore set about obtaining a yeast grown in a copper and iron free medium and also yeast grown in a medium containing iron but free from copper. These cultures have now been obtained in sufficient quantities to try feeding experiments. Elvehjem has recently also grown yeast in copper and iron free mediums.

Application of Experimental Results in Treatment of Anemias.—As far as the therapeutic application of these researches is concerned, we have found that, when iron therapy and a varied diet have failed to cure the anemia rapidly, the addition of copper has made no difference to the slow progress of the condition. In all cases diagnosed as simple nutritional anemia, iron and a mixed dietary have led to a speedy rise in the hemoglobin level, but the iron salt used has always contained traces of copper. To put it another way, all cases of simple nutritional anemia have been cured by the giving of a mixed dietary and a salt of iron which contains copper as an impurity, but cases of what we call constitutional anemia which resist this form of treatment have not shown any improvement by the addition of copper. This does not necessarily mean that the copper treatment is a failure but that there is some factor other than a nutritional one concerned with the production of this particular group of anemias. The preparation of iron used with such success by Helen Mackay contained, according to Professor Hart, who estimated it for her, 1.7 mg. per hundred grams. The methods of treatment used by us have included the administration of iron ammonium citrate, reduced iron, and copper sulphate; the ash of lettuce has also been tried in a dose which represents the ash of one large lettuce; copper and iron have also been given in the proportion in which they are found in lettuce ash; dried yeast, liver extract and blood transfusions have also been employed from time to time.

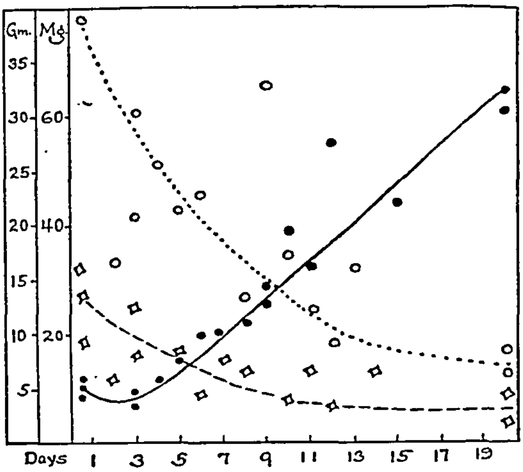

Chart 2.—Amounts of copper and iron in the carcasses of rats from birth to the end of the weaning period. Copper expressed as mg. per kilogram of dry tissue and iron as mg. per hundred grams of dry tissue. Solid line and dots, body weight in grams. Circles and dotted line, iron. Squares and broken line, copper.

So far as I am aware, the first reports of cases published showing the effect of copper in the treatment of infantile anemias is a small series reported by Josephs to the pediatric section of the New York Academy of Medicine. Josephs' criticism of his cases is so obviously that of an honest and careful observer that it is worth quoting in full. He says:

> These results with copper were somewhat surprising. I did not expect them and I do not know what to make of them. More controls are needed before I can draw any conclusions as to the effect of copper in the treatment for anemia. The results thus far have tended to confirm the results in the anemia of rats as first obtained in Steenbock's laboratory. In a number of cases I can say definitely that the hemoglobin formation was accelerated by the use of copper.

In a recent issue of The Journal, which I saw just before leaving England, there is a paper by Lewis [1] on the treatment of anemia in children by copper and iron. Thirty-four children were treated and he states that no case in the nutritional series failed to respond to iron and copper, and in the charts accompanying the article it is clear that the response to iron and copper is much greater than the response to iron alone. I think that his conclusions are correct deductions from his observations, but the proof is not absolutely conclusive because he did not add iron or iron and copper to a milk diet alone but gave a varied diet. With regard to this he remarks that the response to diet is a matter of months whereas that of iron and copper is one of weeks. Lewis also made an observation which has been our experience and also that of Helen Mackay that infection interfered with the rate of blood regeneration, an interesting and important point and one which may perhaps be compared with the similar effects of infection on the action of insulin and parathyroid hormone.

I have no knowledge of the treatment of anemia in children by the administration of amino-acids.

CONSTITUTIONAL NUTRITIONAL ANEMIA

I now come to a group of cases of great clinical interest. These are instances of anemia in infants which may be noticeable as early as the first few weeks of life but in any case gradually increase in severity as the infants get older, and on which a varied diet and all forms of treatment appear to produce no effect. Improvement usually does eventually occur but from no obvious cause, although possibly hygienic measures and dieting may be factors. The usual age at which recovery occurs is about 2 or 3 years, but these children are often unable to withstand any intercurrent disease, or the anemia itself may be so severe as to cause death, an event which is especially likely to occur if the red cell count remains low or falls after blood transfusion. The most striking feature in the etiology of this type of anemia is that it frequently occurs in premature children or in twins and particularly in premature twins; other etiologic factors are first pregnancies and bad home conditions. There is no association with icterus neonatorum, rickets or syphilis, and although these children are always difficult to feed, feeding probably has little to do with the onset of the anemia. It is more than probable, especially in view of our experimental results, that the instances of "primary anemia of the new-born" are examples of this constitutional anemia except that the anemia is observed at or soon after birth and is perhaps rather more severe. Actually in three of our cases it was stated by the mother that the pallor was noticed when the baby was born.

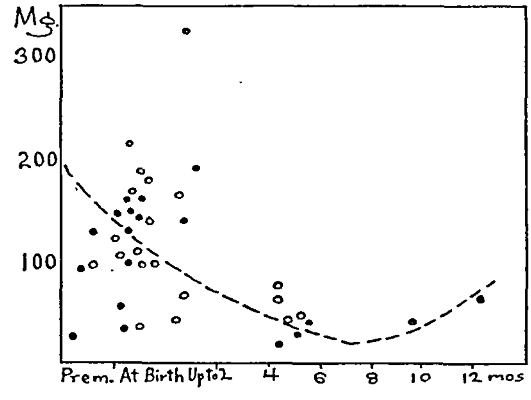

Chart 3.—Amounts of copper and iron present in infant's liver at varying periods from birth to age of 1 year. Solid dots, iron in milligrams per hundred grams of dry weight of liver. Circles and broken line, copper in milligrams per kilogram of dry weight of liver.

In our cases the anemia was found most often to be chlorotic in type but at times a greater fall in the red cell count was noted than would be expected in a chlorotic anemia, and this was sometimes due to infection. The average diameter of the red cells was normal, but in one severe case—which also showed urobilin and urobilinogen in the urine—the cells were slightly enlarged. Reticulocytes were increased slightly, averaging from 0.5 to 0.4 per cent of the red cells. Sometimes there was a leukocytosis which was the result of an intercurrent infection, and in these cases myelocytes and large numbers of nucleated red cells were also found. On the other hand, a slight degree of leukopenia was also found in some cases. Otherwise the differential count was within normal limits except for the presence of very large lymphocytes with a nucleus like, but with less cytoplasm than, the typical lymphoblast. In half our cases the spleen was enlarged but never to more than a moderate degree. These children, as stated, showed no dramatic response to any form of treatment, but careful attention was paid to the nursing; good hygienic conditions were secured and a varied diet given, and after the second year spontaneous cure set in.

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[1] Lewis, M. S.: Iron and Copper in the Treatment of Anemia in Children, J. A. M. A. 96: 1135 (April 4) 1931.

Possibly the cause of this condition is a temporary error of metabolism, but of what nature I cannot say. There is some evidence of an inborn error or lack of some substance or substances which the infant cannot synthesize from his food afforded by our yeast rat experiments and also by the facts that so many of the patients are either premature or twin babies, or both. Whatever the cause may be, the reticulo-endothelial system is affected, resulting in a defect of hemoglobin synthesis with or without a diminished number of red cells.

Following the German literature, these cases have been classed under the heading of nutritional or alimentary anemias, although I have placed them under a separate subheading. There are, however, many cases intermediate between the two subgroups of "simple" and "constitutional" nutritional anemias and it is usually necessary to watch the effect of treatment for several months before relegating any given cases to the "constitutional" group.

It is obvious that Czerny and Kleinschmidt are in their writings dealing chiefly with this group of cases for they both noticed the liability of premature infants, twins and triplets to suffer from a chlorotic type of anemia and the frequent association with it of lymphatic hyperplasia, especially splenomegaly. Neither found any specific cure except in rare cases in which iron led to speedy recovery. These iron-cured cases would, I presume, be placed in the simple nutritional group of my classification. Kleinschmidt attributed nearly all cases of anemia in infancy to nutritional causes, denied the possibility of rickets leading directly to alteration in the blood, and minimized the part played by infection except in glandular tuberculosis and syphilis. He said that the anemia following a prolonged milk diet is related to constitutionally abnormal children and cannot be explained on iron deficiency alone; that it appears in all grades of severity and gives a varied picture owing to the combination of the most varying constitutional anomalies.

Czerny, on the other hand, regarded the anemia as the result of a milk injury, a hemolysis due to the action of products of milk fat metabolism (fatty acids). There is, however, no convincing evidence to prove this action because before this theory can be accepted it must be possible to prove hemolysis in all cases. The presence of urobilinogen in the urine has been adduced as evidence and while not denying the value of this evidence I can say that it has been found in our cases only on rare occasions. The intense regenerative anemia associated with goat's milk is of interest in this connection. Goat's milk anemia, which progresses to a much more severe degree of anemia than cow's milk anemia, is not uncommon in Germany and cases have been reported in America but none so far in England. The molecular weight of the fatty acids of goat's milk is higher than that of cow's milk and to this fact are said to be due its greater anemia-producing qualities; on the other hand, it has been suggested that the striking megaloblastic response which occurs is due to stimulation of persisting fetal extramedullary hematopoietic centers.

The question of the occurrence of anemia in rickets properly falls for discussion under the heading of nutritional anemias, and diverse opinions have been expressed as to its frequency. A. F. Hess says that in his experience, which embraced mainly rickets of mild or moderate degree, anemia was not present more often or in greater intensity than in similar nonrachitic infants; further, that it was greatly improved by giving large doses of iron. Still, on the other hand, regards anemia as a manifestation of rickets and one that may be altogether out of proportion to the bone changes, and according to Marfan it is an important and characteristic sign of rickets. The most careful observations on this subject have been made by Leonard Findlay, who after examining thirty cases of uncomplicated rickets came to the conclusion that anemia was only exceptionally present and was the result of adventitious causes and not rickets; moreover, he found that the number of red cells and the hemoglobin in the series of cases examined were notably in excess of the normal average.

The not infrequent association of von Jaksch's anemia with rickets has been commented on many times and it may be that there is some connection between the regeneration blood picture of that syndrome and the high red cell count and hemoglobin of Findlay's cases. Of the children in our series, only five showed signs of active rickets and of these only one showed the characteristics of the von Jaksch syndrome, although a degree of splenomegaly was present in four. In all cases the anemia was slow to improve, and from four to six months' treatment was required before the red cell counts approached normal. The number of red cells fell almost in proportion to the hemoglobin percentage, a fact which distinguishes these cases from the simple nutritional anemias and allies them to the anemias due to infective causes.

ANEMIA DUE TO INFECTION

Fifteen of our series of fifty cases showed evidence of infection, but I wish here to refer to only two groups; namely, those due to intestinal and those due to urinary infection.

Intestinal Infections.—It is common knowledge that organisms of the typhoid-coli group produce a hypoplastic condition of the marrow, and that anemia to a greater or lesser degree is always associated with typhoid and paratyphoid. Further, *B. coli* pyelitis leads to a severe anemia, which will be considered later, but there are a few cases in our series which seem definitely to point to an intestinal infection as evidenced by abdominal pain and diarrhea or vomiting, leading to an acute and grave anemia which was characterized by a spontaneous and rapid recovery.

The similarity in history, signs and hematologic observations in these cases were very striking. The onset of the pallor was sudden and accompanied by lethargy. The child was acutely ill, the liver and spleen were enlarged. The blood picture was typical of a severe destruction of red blood cells with an intense marrow reaction, the circulation being flooded with reticulated red cells, a few nucleated red cells (normoblasts and macronormoblasts) and immature leukocytes. There was a leukocytosis of from 20,000 to 40,000, and the reduction of hemoglobin was almost proportional to that of the red cells. In other varieties of anemia in infancy this high color index is seldom or never found.

Since the stools were not thoroughly investigated it might be contended that these cases were examples of parenteral and not enteral infections, but no evidence of the former was found. Of the cases placed in this group, three had a short and two a more chronic course. One of the patients who recovered rapidly after an intense anemia was a boy of 4 years who was, of course, well above the age for the other forms of anemia peculiar to infants and young children, but yet his illness paralleled in a striking manner that of two other children who were both under a year old.

Infections of the Urinary Tract.—The fact that pyelitis and pyelonephritis of infants may be accompanied by a severe anemia is not, I think, generally recognized, at any rate in England. This is unfortunate because the prolonged milk diet may aggravate an already existing anemia, thereby still further lowering the baby's resistance. Probably every case of chronic infection of the renal pelvis shows some degree of anemia, and in the cases included in this series that degree became very marked; in fact, one patient was admitted as having anemia but, the blood picture being suggestive of an infection, the urine was examined and found to be full of pus and bacteria. In this particular instance, as the pyrexia improved under treatment, there was a steady improvement in the blood count, but such a strain had been thrown on the bone marrow that the child succumbed to a superimposed bronchopneumonia; for although the red cells and hemoglobin percentage rose and the leukocytic count fell from 38,420 to 12,700, the polymorphonuclears were nearly all one lobed and the weighted mean shifted farther and farther to the left, so that there was absolutely no reserve on which to call when the second infection was contracted. The reticulocyte count was low during the whole course of the pyelitis.

THE RELATIONSHIP BETWEEN THE HEMOLYSIS AT BIRTH AND THE ANEMIAS OF INFANCY

There are many other points that have arisen in this study which time will not allow me to deal with. For instance: the relationship between the normal hemolysis which occurs at birth and the anemias of infancy. At one time we fell under the spell of a subtle temptation leading us to think that, depending on the degree of such hemolysis, the infant might be free from jaundice or show either the ordinary icterus neonatorum or icterus gravis neonatorum and probably also intermediate forms between these extremes; further, that the later result of this hemolysis was a degree of anemia, slight in the unjaundiced or neonatal icterus but severe in those suffering from icterus gravis, which persisted in the artificially fed child until after weaning but was cured by breast feeding. The objections to this attractive theory have, however, multiplied; first, no true intermediate cases between simple and grave icterus neonatorum have been found, and they should be frequent if the theory were correct. Secondly, nutritional anemia is of the chlorotic type whereas the anemia which develops after grave icterus is a severe hemolytic form with an intense bone marrow reaction as shown by a high reticulocyte count, large numbers of nucleated red cells, the presence of myelocytes, and a marked leukocytosis. Thirdly, in three of four cases of anemia following icterus gravis the average diameter of the red cells during the anemia was high and gradually fell to below normal as the patient recovered, a condition that does not occur in nutritional anemias. Fourthly, there was no evidence of an undue proportion of instances of icterus neonatorum in children suffering from simple or constitutional nutritional anemias.

It is therefore clear that the anemia following icterus gravis comes under the head of anemia from hemolysis, that it differs from nutritional anemia, and that there is no connection between jaundice at birth and the nutritional type of anemias.

PSEUDOLEUKEMIA OF VON JAKSCH

There is one other point which I must just mention before I close; that is, the question of the existence of the disease known as von Jaksch anemia. In his masterly review of this subject, Cooley says that the English use the term von Jaksch anemia pseudoleukaemica infantum freely, though apparently with some hesitation as to separating it definitely from "infantile splenic anemia," which some seem to consider as distinct from the splenic anemia of later years. British workers speak of von Jaksch's anemia as "splenic anemia of infants" to differentiate it from "splenic anemia of adults," or Banti's disease. The latter syndrome, the existence of which as a special disease is denied by many authorities, is in its early stages characterized by an enlarged spleen, a low red cell count, low hemoglobin percentage and a leukopenia but without any typical cell picture, and in the later stages by hematemesis or melena and an enlarged liver, symptoms that are the result of the development of a cirrhosis of the liver. Although Banti disease is typically found in adults, there are many cases on record in which it has occurred in childhood. I myself have recorded one in a child of 2½ years, and in the present series there is an example which occurred in an infant and caused death at that age.

The clinical syndrome recognized as von Jaksch's anemia is now seen much less frequently than in former years, and I may perhaps be permitted, without producing the evidence in detail, to state categorically that in our investigations we have found nothing to support the view that this is a disease *sui generis.*

Men of a New and Different Type.—In temperament, as in training, the new phase in medicine, as in the other sciences, calls for men of a new and different type. It is no stretch of the imagination to believe that the physician of practice has chosen his calling because of his preference for contact with fellow-creatures; on occasion he becomes a leader; his is the wisdom which springs from a knowledge of men. To exercise authority is natural to him; but, above all else, he is possessed of that indefinable quality which has been designated "art." He who serves the newest of the functions of medicine is cast in a different mold; curiosity is his determining characteristic, his tendency is to be cloistered, his mood welcomes detachment, he is apt to insist on his individuality, he develops a taste for loneliness. Books and the laboratory are his life rather than public occupation and wide acquaintance with men. The difference between the two is real; they represent different psychological types. Naturally the same individual may combine within himself the ability to exercise various functions. Such men are fortunate; to their broad interests medicine furnishes many opportunities.—Cohn, A. E.: Medicine, Science and Art, Chicago, University of Chicago Press, 1931.

ALLERGIC AND INFECTIOUS CONDITIONS OF UPPER RESPIRATORY TRACT IN CHILDREN

DIFFERENTIAL DIAGNOSIS *

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AND
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Some of the commonest conditions that are seen in children are those which are classified under the general heading of infections of the upper respiratory tract. Among them are included rhinitis, sinusitis, nasopharyngitis, pharyngitis, tonsillitis, laryngitis, tracheitis and bronchitis. All these conditions may be infectious in origin but are frequently manifestations of respiratory allergy, from which they must be differentiated if proper treatment is to be instituted. In addition, many of the true infections are complications of an underlying allergy and cannot be cleared up until the allergy predisposing the mucous membranes to infection is relieved.

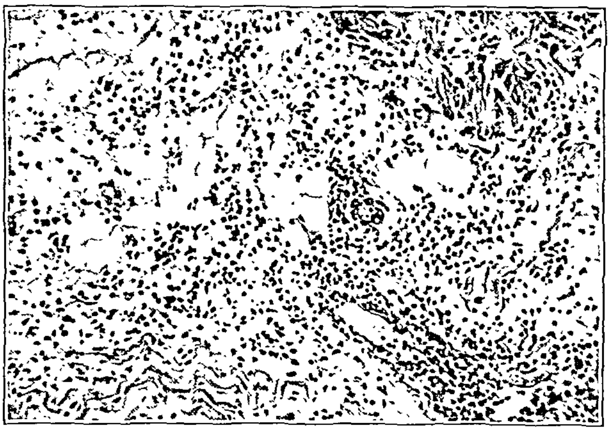

Fig. 1.—Experimental allergy; subcutaneous fat 1.5 cm. below wheal, showing intense edema and infiltration by eosinophils. A patient sensitive to ragweed was injected intracutaneously with 0.1 cc. of 1: 5,000 solution of ragweed pollen; a wheal 4 by 7 cm. was produced. A section of the edge of the wheal and subcutaneous fat was removed thirty minutes later.

Our experience has given us the impression that many physicians do not think of allergy in relation to these conditions unless the symptoms are typical of hay-fever or bronchial asthma, and some even consider typical asthmatic attacks to be infectious in origin because in some children they are accompanied by fever.

Many of the studies of the incidence of primary and recurrent respiratory infections lose their significance because the allergic "colds" are not separated from those which are infectious in origin. For example, last year there was reported before this section a study[1] which revealed that, of 582 children with "colds," 241 had one or more recurrent infections. Of these, 47 were classified as having bronchitis of the asthmatic type and in 43 spasmodic croup was the predominant symptom. Thus there were 90 with more than a suspicion of allergy. It is also interesting to note that while contact with some one with a cold seemed to influence the incidence of primary infections, it had little if any relationship to the incidence of recurrent infections.

Conditions of the upper respiratory tract in children may be divided into three classes; namely, (1) allergic, (2) infectious and (3) combined allergic and infectious. The symptoms in all three types are similar. They are those commonly associated with infections in the nose, nasopharynx, pharynx, etc.; but there are many points in the history, the examination and in the result of therapy which enable one to differentiate between them.

The most important point in the differentiation is to think of allergy.

In the accompanying tabulation we have listed the points of contrast between the allergic and the infectious conditions and have omitted the points of similarity.

Differential Diagnosis of Allergic and Infectious Conditions of the Upper Respiratory Tract in Children

History

Allergic	Infectious
1. Attacks usually recurrent.	1. Attacks usually single.
2. Often mild symptoms between attacks.	2. Usually clears up completely.
3. Definite relation to heredity.	3. No relation to heredity.
4. Not contagious.	4. Contagious.
5. Not related to exposure to another case.	5. Definite relation to exposure to another case.
6. Constitutional symptoms slight.	6. Constitutional symptoms more marked.
7. Foods and inhaled substances often traced as causes.	7. No relation to foods or inhaled substances as cause.
8. Itching common.	8. No itching.
9. Wheezing common.	9. No wheezing.
10. Other allergic conditions present or in past history.	10. Usually no other allergic condition present or in past history.

Examination

Allergic	Infectious
1. Visible mucous membranes, pale, glistening, edematous.	1. Visible mucous membranes, hyperemic, red.
2. Thin watery mucoid nasal discharge, mucoid sputum.	2. Mucopurulent or purulent nasal discharge and sputum.
3. Smear shows eosinophils 10 per cent or more.	3. Smear shows polymorphonuclear neutrophils as predominant cell; eosinophils few or absent.
4. Other signs of allergy often present.	4. No other signs of allergy.
5. Sinus involvement of hyperplastic type.	5. Sinus involvement of purulent type.
6. Wheezing breath sounds.	6. No wheezing breath sounds.
7. Roentgenogram shows bronchial markings increased.	7. Bronchial markings not increased in roentgenogram.
8. Allergic skin reactions usually positive.	8. Allergic skin reactions usually negative.

Treatment

Allergic	Infectious
1. Epinephrine specific for symptoms.	1. No relief from epinephrine.
2. Avoidance of specific allergens followed by relief.	2. Avoidance of food or inhalant substances produces no change.

Combined
Allergic and Infectious

Primary allergic conditions are often secondarily infected. Cure depends on recognition and relief of the allergy. The body then overcomes the infection in most cases. This does not preclude treatment for the infection when indicated.

The history of these cases is of the utmost importance. The allergic child usually has a family history of allergy (from 40 to 50 per cent[2]) and has other manifestations of allergy such as eczema, urticaria, gastro-intestinal vagotonia, asthma or hay-fever, either at the time of the examination or in the past history.[3] These conditions are usually absent in the purely infectious types but may be present in the combined types. The importance of the family history is readily seen if one remembers that the studies of Cooke and his associates[2] have shown that, in families in which both parents have allergy, 75 per cent of the offspring of the union will develop the disease and many will have symptoms before the fifth year.

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* From the Asthma, Hay Fever and Allergy Foundation.

* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] McLean, C. C.: The Incidence of Recurrent Respiratory Infections in Childhood, J. A. M. A. 95: 1338-1341 (Nov. 1) 1930.

[2] Cooke, R. A., and Spain, W. C.: Studies in Specific Hypersensitiveness: XI. The Familial Occurrence of Hay Fever and Bronchial Asthma, J. Immunol. 9: 521 (Nov.) 1924.

[3] Peshkin, M. M.: Asthma in Childhood: II. The Incidence and Significance of Eczema, Urticaria and Angioneurotic Edema, Am. J. Dis. Child. 32: 862 (Dec.) 1926.

Attacks due to allergy are usually recurrent, often do not clear up completely but leave a residue of mild symptoms between the attacks, are not contagious, and are not related to exposure to other cases. Most mothers will state that the child has frequent colds at times when other members of the family have none and that the other members of the family escape.

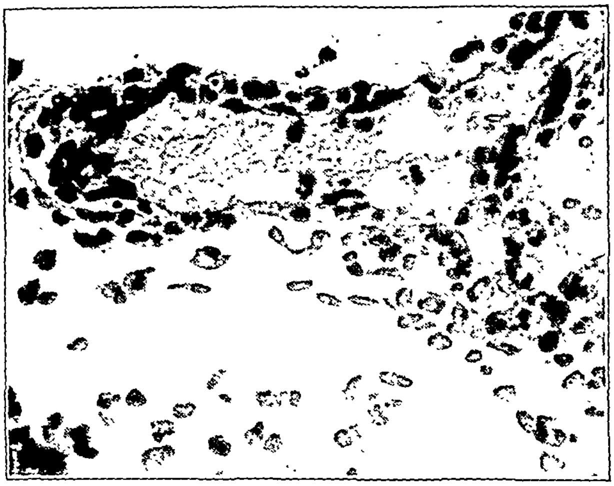

Fig. 2.—Experimental allergy; higher magnification of a blood vessel 1.5 cm. below experimentally produced ragweed wheal. Within thirty minutes there is margination of the eosinophils within the vessel with their emigration into the surrounding fatty tissue. This is the specific lesion of allergy. As a result of the contact between the ragweed pollen extract and the cellular antibodies a toxic substance is formed which exerts a specific chemotactic influence on eosinophils. The edema is probably a defense mechanism, an attempt to dilute the toxic material.

Attacks due to infection, in contrast, are usually single since a "cold" confers an immunity of about three months,[4] and in the absence of purulent infectious complications they clear up completely without residual symptoms; they are definitely contagious and are related to exposure to other cases.

Most allergic cases with nasal symptoms present the subjective symptom of itching of the nose, throat or eyes. Those with bronchial symptoms give a history of wheezing. In the absence of a foreign body in the lung or the inhalation of some definite respiratory irritant, wheezing always means that allergy must be ruled out as a cause of the symptoms.

Infectious cases rarely present these symptoms. Frequently the allergic patient will be found to have a definite idiosyncrasy to some food, or the mother will report some definite food dislikes. While psychologic factors for such dislikes must be ruled out, they are frequently significant and every allergist of experience has learned their importance. In addition, Dr. Clara Davis has called our attention to the fact that allergic infants on self selected diets will not eat the foods to which they are clinically sensitive.

Attention to the factors discussed will enable one to begin to separate children with symptoms of respiratory infections into their proper groups. The examination usually makes the differentiation certain. In the allergic cases the visible mucous membranes are pale, glistening and edematous. Frequently the passages are closed by the edema of the turbinates. The mucous surfaces are covered with a thin mucoid discharge. The sputum, if present, is mucoid in character. Smears of the discharge when examined in a fresh state or after staining by Wright's method show a predominance of polymorphonuclear eosinophils.

In the infectious case the mucous membranes are less swollen, more hyperemic and look hot. The discharge and sputum are mucopurulent or purulent, and smears show polymorphonuclear neutrophils as the predominant cell.

It is a safe rule to regard a smear of nasal or bronchial secretion showing 10 per cent eosinophils or more as diagnostic of allergy. Their absence does not rule it out absolutely.

In addition to these easily recognizable signs, many allergic cases show sinus involvement of a hyperplastic type and often nasal polypi. They also show markedly increased bronchial markings on roentgen examination of the chest and usually give positive dermal, intradermal or eye tests when examined with a sufficient number of potent allergens.

The infectious cases with sinus involvement present purulent infections, their bronchial markings are less definite on roentgen examination and tests with allergens are usually negative.

In this connection it is imperative to point out two common fallacies. The first is the diagnosis of sinus disease from cloudiness on the roentgenogram. Sinus visualization depends on the air content. If roentgenograms are made at a time of acute nasal swelling, the ostia of the sinuses will be plugged, the air content of the sinus will be reduced, and a diagnosis of pansinusitis may be made. Shrinking of such a nose, followed by roentgen examination of the sinuses or such examination between attacks, frequently shows the sinuses to be normal.

The other fallacy is overdependence on skin tests. A positive test is a clue, nothing more. Its significance must be determined by clinical experimentation, and such experimentation must be carefully controlled. Often factors of proved clinical significance cannot be determined by testing.

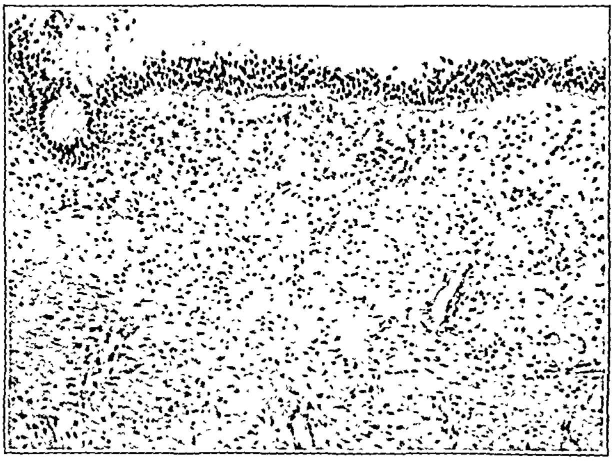

Fig. 3.—Infected nasal mucous membrane, showing the infiltration of submucosa by mononuclear and occasional polymorphonuclear leukocytes. There is no eosinophlia or edema.

If after considering the points in the history and examination one is still in doubt as to the proper classification of an infection of the upper respiratory tract, therapeutic tests may assist in the final diagnosis. The constitutional symptoms of allergy are controlled by epinephrine. Recurrence of symptoms is prevented by avoidance of the offending allergen.

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[4] Dochez, A. R.; Shibley, G. S., and Mills, Katherine C.: Studies in the Common Cold, J. Exper. Med. 52: 701 (Nov.) 1930.

The accompanying photomicrographs illustrate the pathologic changes of allergy following the production of an allergic wheal in the skin, a similar process in a bronchus from a fatal case of asthma, and an ordinary chronic infection in the nasal mucous membrane. The allergic processes are characterized by intense eosinophilia, which accounts for their presence in the exudate from areas involved in allergic processes.

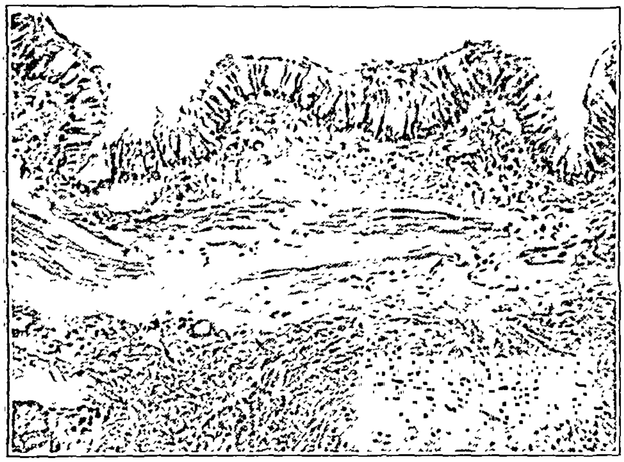

Fig. 4.—A normal bronchus, showing the empty lumen, the thin submucosa and the absence of cellular infiltration.

SUMMARY AND CONCLUSIONS

An attempt has been made by means of tabulations and photomicrographs to demonstrate differences between allergic and infectious respiratory conditions in children which will enable careful clinicians to differentiate between them. This differentiation is essential to the proper care of both groups of patients.

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ABSTRACT OF DISCUSSION

Dr. Bret Ratner, New York: Drs. Cohen and Rudolph have brought up a highly significant question in the differentiation of general respiratory conditions from the true allergic. The 582 cases which they studied, indicating that 94 of these cases were allergic, show that there is a certain percentage of conditions that are wrongly diagnosed, and it is these cases that have to be reclassified. The child that sneezes continuously, sneezes in the morning and several times a day, is usually allergic and should be tested. Many cases of recurrent bronchitis and so-called whooping cough are wrongly diagnosed, for often the patients are allergic. In all allergic respiratory conditions there is often a definite history of eczema or so-called exudative diathesis in infancy. An important point in the diagnosis of allergy is its periodicity. One need never make a diagnosis of allergy at the first or second visit. If the condition is allergic, it is going to recur. If a child has an asthmatic attack and it is truly allergic, there will be a recurrence in a month or two. Another important point is the absence of fever. These children apparently seem to have pneumonia. If they have the signs without fever and have typical sibilant and sonorous breathing, they usually are asthmatic. The question of heredity is not as significant as it was previously thought to be. The histories of allergic children show heredity in only about 40 to 50 per cent of the cases, so that in many of these cases the condition is acquired. Epinephrine will relieve most of the allergic conditions in children, and it also serves as a diagnostic measure. However, if a child has terrific dyspnea and one has given a small injection of epinephrine, one should not be too hasty to repeat it. It is much better to tell the mother that, the harder the child breathes, the better for the child. Later one should try to discover the cause of the asthma or hay-fever and institute specific treatment. I should like to add a note of warning; namely, that practically all patients with asthma that have died have died as a result of morphine. I am seeing more and more of these deaths.

Dr. Abraham Trasoff, Philadelphia: I subscribe to what the authors have said with reference to the differentiation between infectious and allergic conditions of the upper respiratory tract. I have had the opportunity to study a number of such cases in the allergic clinic of the Mount Sinai Hospital in Philadelphia and they were typical of the description by the authors. However, I should like to stress the fact that in the allergic type symptoms persist throughout the year regardless of season, sunshine or rain, whereas in the infectious type aggravation is usually marked in the fall and winter seasons. While the appearance of the mucosa of the allergic nose is typical as described, yet, when secondary infection sets in, as it frequently does, it is not as easy of recognition. The allergic type is frequently associated with a seasonal pollen sensitivity. When the proper treatment for the pollen hay-fever is instituted the perennial symptoms clear up. Roentgen examination of the chest in my own experience has not been of much diagnostic value.

Dr. Isaac A. Abt, Chicago: Please tell how you made those nice selections.

Dr. C. U. Moore, Portland, Ore.: I have a son who had repeated colds. The cause of the trouble was not found until allergic skin tests were made and it was found that he was sensitive to veal. About a year later when the tests were repeated he said, "Dad, I notice every time I eat veal I catch cold."

Dr. J. A. Rudolph, Cleveland: Dr. Cohen and I have made no attempt in this paper to discuss every phase of allergy. We have merely suggested some of the high points in the differential diagnosis of allergic and infectious conditions of the upper respiratory tract. One having made the diagnosis may treat these children properly. We agree with Dr. Ratner on the question of opiates in allergy, particularly in those of the asthmatic type. We have seen deaths due to morphine. We mentioned that fever may or may not be present in these particular cases. It is not a criterion. We have mentioned a large number of factors that may be present, yet not every one of these factors will be present in every case. One must use judgment about every one of these things. With regard to skin tests, it must be emphasized that they are another aid in the diagnosis of allergic conditions. If skin tests are employed together with roentgen and physical examination, one is not likely to become unduly dependent on any one method of diagnosis. I must emphasize here again that one must be a careful clinician first and resort to special tests later.

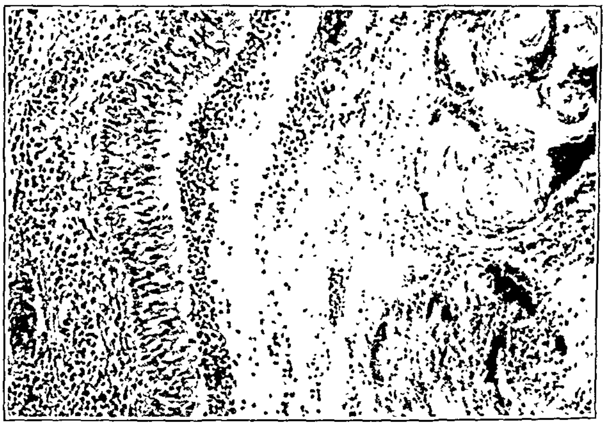

Fig. 5.—Bronchus the seat of an allergic attack; edema and infiltration of the submucosa by eosinophils. It may be noted that the lumen is filled with mucoid material containing many eosinophils. In the upper right hand corner are plugs of mucus which, when expectorated, can be recognized as Curschmann's spirals and Dietrich's plugs. The dyspnea is due to the mechanical plugging by the exudate.

ECZEMA

FUNDAMENTAL PRACTICAL CONSIDERATIONS *

S. WILLIAM BECKER, M.D.
CHICAGO

Eczema is dermatitis, characterized by vesiculation in a patient who is hypersensitive to the irritative agent.

Disregarding for the moment the factor of hypersensitiveness and concentrating on the clinical aspect, the dermatosis is manifest first as erythema, then as edema. The edema of the epidermis is largely intercellular and gives rise first to microscopic and later to macroscopic vesicles. This process is spoken of as "spongiosis" and is found almost without exception only in the types of dermatitis known as eczema and dermatitis venenata.

If the process continues, the vesicles rupture, fluid exudes from the skin, and one sees the stage commonly known as oozing or weeping. The fluid is an exudate, has a high fibrin content, coagulates on exposure to air, and forms crusts. After a certain time, scaling is seen. Scaling is here due to an abnormality of the keratinization cycle known as parakeratosis and is a sign of subacute or chronic epidermal inflammation.

Continued inflammation beyond this stage causes the skin to thicken, become lichenified (exaggeration of the normal skin lines), lose its elasticity, with subsequent fissuring, and become at times hyperpigmented.

In so-called papular eczema, really papulovesicular eczema, small isolated papules are present, capped by microscopic or macroscopic vesicles. Many cases that have been called papular eczema are neurodermatitis, which differs from eczema clinically and microscopically.

No clinical or microscopic differences exist between eczema, with its element of hypersensitiveness, and dermatitis venenata, or simply dermatitis, as it is often called. This fact, complicated by the employment of such terms as allergy, idiosyncrasy and anphylaxis, has given rise to much contention.

Pusey [1] aptly states:

> When there is a balance between the capacity for resistance of the skin and the insults to which it is exposed, there is a healthy skin. This balance, of course, may be upset by variations of either factor to it; by exposure, on the one hand, to insults beyond the capacity of the normal skin to resist [dermatitis venenata], or, on the other hand, by a lowered resistance of the skin, so that it reacts from insults that the normal skin bears without apparent damage [eczema].

Even the question of hypersensitiveness is not a simple one. It is obviously difficult to establish a deadline at 50 per cent and array the various irritating substances on either side of it, depending on the percentage of persons who would react to the substance, calling the lower half eczema and the upper half dermatitis or dermatitis venenata. The latter is not an ideal term, since it is a far cry from plant or animal venoms responsible for the "dermites vénéneuses" of the French to the various chemical substances responsible for some cases of dermatitis venenata. However, the Viennese "dermatitis ex causa externa" and the French "toxidermie de cause externe" are just as unsuitable., and "dermatitis venenata" will continue to be used. The entire subject of eczema and allied conditions has been discussed recently by Friedman.[2]

"ECZEMA" VERSUS "DERMATITIS"

It has been argued that it is sufficient to call all dermatitis of the eczema type "dermatitis," and some authors have discontinued the use of the term "eczema." Others denote as dermatitis all cases in which an irritating agent has been demonstrated, and call others eczema. This is scarcely scientific enough, an opinion shared by Highman,[3] and both of the foregoing concepts neglect important biologic factors concerned in the idea of hypersensitiveness, which are necessary to understand the process. For instance, a person puts his hands into pure compound solution of cresol by mistake. The resulting inflammation is of the vesicular type, but a condition of hypersensitiveness does not have to be considered, since every one reacts to this solution, and the inflammation is called dermatitis venenata. The skin improves, but instead of healing completely, it flares up on exposure to mild irritants such as water, soap, dust and dirt. This eruption is now due to hypersensitiveness, belongs on the other side of the deadline and is eczema.

The following case illustrates eczema due to specific sensitization to burweed marsh elder (*Iva xanthifolia*) pollen and the gradual development of nonspecific sensitization:

Case 1.—A brick mason, aged 62, had first noted itching of the face in August, 1927. This had been followed by erythematous spots and later by diffuse erythema. He had not noticed vesicles or oozing of the face. The condition persisted for one month. In August, 1928, the same condition appeared and persisted for two months; in August, 1929, it persisted for three months, and it had been present for five months since August, 1930. In August, 1930, a patch of dermatitis had appeared on the right wrist. The patient had had no symptoms referable to hay-fever or asthma. General examination gave essentially negative results. The blood count was normal with the exception of 6 per cent eosinophils. The skin of the face was diffusely erythematous and thickened, producing exaggeration of the skin lines. On the right wrist was a dry crusted and scaling patch of eczematoid dermatitis. A diagnosis was made of recurrent eczema, probably due to sensitization to a fall pollen. The skin was tested by Dr. Harry Huber, with the following results: Scratch tests with fall pollens were negative. Patch tests with fall pollens were negative with the exception of marsh elder, which produced an erythematous, vesicular, oozing and crusting patch. The increasing duration of the dermatitis each year was considered due to the gradual development of nonspecific sensitization, as often occurs in recurrent eczema.

Bloch [4] has shown that quantitative and not merely qualitative factors are involved, not only in irritative manifestations of this form of dermatitis but also in active sensitization to substances such as those which he has derived from primrose leaves. He found that the number of persons reacting to a substance varied as the concentration of the substance and as the number of applications. Klauder and Brown [5] have studied the sensitivity of rabbit skin under varying conditions.

MECHANISM

Cutaneous hypersensitiveness of this type is evidently epidermal, as contrasted with dermal hypersensitiveness in the erythemas, in the dermatitides known as scarlatiniform and exfoliative, and in urticaria. The offending agent may reach the epidermis from the outside (the usual method) or from the blood stream. Bloch applied quinine externally to a hypersensitive patient and produced local eczema; he injected quinine intravenously into the same patient, with resulting generalized eczema and an asthmatic attack. Whether metabolic products reaching the epidermis through the blood stream may cause eczema is a question. Burgess[6] found that 16.6 per cent of eczematous patients reacted positively to the percutaneous administration of decomposition products found in the intestine. One should fall back on incrimination of metabolic products only as a last resort, because more and more cases are being solved by diligent search for definite external irritants. The internal mechanism has most likely been evoked too frequently, and the fact lost sight of that the skin is exposed to continual bombardment by physical and chemical agents in the form of pressure, friction, water, either in vapor or liquid form, and dirt and dust with their multitudinous flora. These ubiquitous irritants may perpetuate eczema due to whatever cause, to the bewilderment of patient and physician. A fact too little borne in mind is that it is as impossible to protect the skin from external irritants as it is to put the heart at complete rest. The ability to do this would simplify tremendously the treatment of eczema and many other inflammatory dermatoses.

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* From the Division of Dermatology of the Department of Medicine, University of Chicago.

[1] Pusey, W. A.: The Pathogenesis of Eczema, read at the Eighth International Dermatological Congress, Copenhagen, August, 1930.

[2] Friedman, Reuben: Eczema—"To Be or Not to Be . . .", Arch. Dermat. & Syph. **22**: 244 (Aug.) 1930.

[3] Highman, W. J.: Pathogenesis of Dermatitis, Arch. Dermat. & Syph. **9**: 344 (March) 1924.

[4] Bloch, Bruno: The Rôle of Idiosyncrasy and Allergy in Dermatology, Arch. Dermat. & Syph. **19**: 175 (Feb.) 1929.

[5] Klauder, J. V., and Brown, Herman: Experimental Studies in Eczema, Arch. Dermat. & Syph. **11**: 283 (March) 1925; **15**: 1 (Jan.) 1927; **19**: 52 (Jan.) 1929. Klauder, J. V.: Clinical Aspects of Allergy in Dermatology, ibid. **19**: 198 (Feb.) 1929.

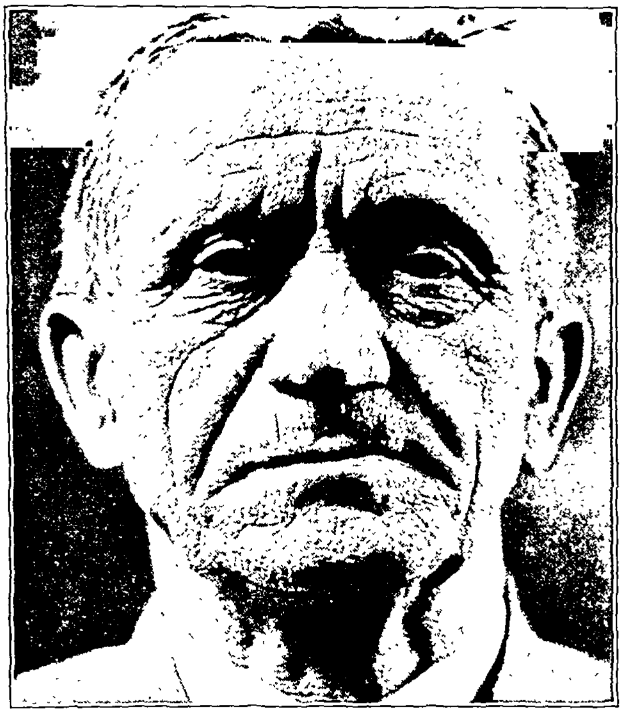

Fig. 1 (case 1).—Recurrent eczema of the face, due to marsh elder pollen; a diffuse eruption.

Infantile eczema is an oozing, crusting dermatitis most often found on the face and scalp but also elsewhere. Skin tests may give a clue to substances which may be proved positive, but cutaneous hypersensitiveness to common irritants is more apt to be the underlying factor.

The actual mechanism of cutaneous hypersensitiveness is not known. Demonstration of antibodies has been made only rarely in eczema, but more frequently in urticaria.

PITFALLS IN DIAGNOSIS

The diagnosis of eczema would seem to be simple, but there are many stumbling blocks. The first is a lack of critical analysis of the dermatosis itself and the fact that so many patients have already used irritating applications, producing dermatitis venenata and confusing the picture.

Eczema is generally a diffuse eruption, involving moderately extensive areas, often exposed surfaces, such as the hands, the hands and arms (fig. 2), the hands and face or the face and neck. Circumscribed patches are generally neurodermatitis (fig. 3). Various parts of the body differ in sensitivity. A woman with facial eczema was found to be sensitive to the rotogravure section of the Sunday paper, a condition that has been thoroughly studied by Oliver.[7] She could handle the paper without eruptive changes on the hands, but evidently transferred manually the irritating substance to the face, with resulting eczema. Small circumscribed patches of vesicular dermatitis, single or multiple and often with no erythema, such as are found frequently on the fingers and hands, are not apt to be eczema but dyshidrosis. This is a circumscribed vesicular eruption of the lateral aspects of the fingers, often extending to their dorsal and ventral surfaces and the palms. The feet may also be involved. Erythema is absent at the onset but often appears later. Hyperhidrosis is often present. Many of the photographs in Mitchell's[8] article depict cases similar to those which I have called dyshidrosis. This paper is timely in calling attention to the nonfungous nature of these cases, whatever their ultimate classification will be. The same feature has been brought out by Becker and Ritchie.[9]

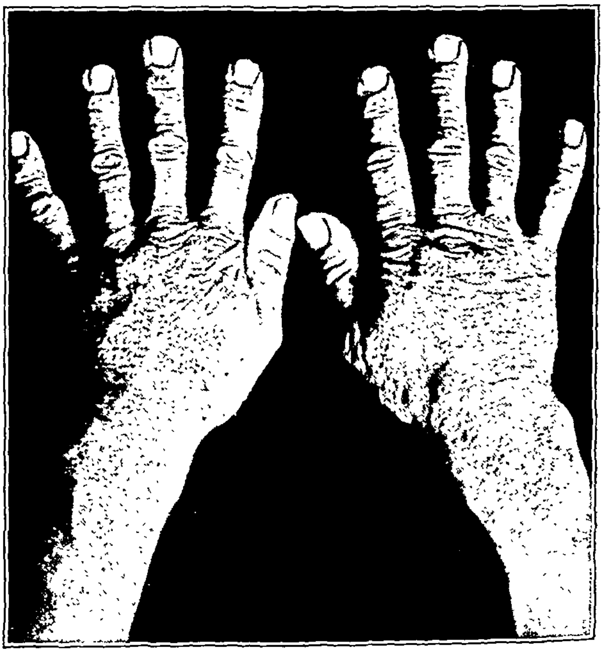

Fig. 2.—Eczema of the hands and arms; a diffuse eruption.

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[6] Burgess, J. F.: Endogenous Irritants as Factors in Eczema and in Other Dermatoses, Arch. Dermat. & Syph. **16:** 131 (Aug.) 1927.

[7] Oliver, E. A.: Rotogravure Ink Dermatitis, J. A. M. A. **91:** 870 (Sept. 22) 1928.

[8] Mitchell, J. H.: Amycotic Dermatoses Simulating Ringworm and Erosio Interdigitalis Blastomycetica, Arch. Dermat. & Syph. **19:** 659 (April) 1929.

[9] Becker, S. W., and Ritchie, E. B.: The Rôle of Yeasts in the Production of Superficial Dermatitis, Arch. Dermat. & Syph. **22:** 790 (Nov.) 1930.

The rapidly appearing erythematous dermatitis of various parts of the face and neck, of the flexures of the elbows (fig. 4) and knees (often called seborrheic eczema or seborrheic dermatitis) and of other regions, with no vesicles and generally pruritic out of all proportion to the inflammatory changes, is more apt to be neurodermatitis than eczema. The condition appears often in childhood but may have its onset at any period in life. In discussing this type of dermatitis, Sutton[10] states: "There is a certain localized type of eczema characterized by sudden outbreaks, involving the flexures of the elbows, the anterior axillary folds, and the inner extremities of the shoulders, which I believe belongs to the 'neurotic' group. . . . Another, and not less important group of cases, also occurring in middle-aged women, is the peculiar neurotic type of eczema of the occipital region which is not infrequently preceded by a lichen chronicus simplex." Here are included the "Philadelphia necks" of Stokes,[11] which are probably more numerous in a more trying city such as Chicago. Neurodermatitis may manifest itself in thick lichenified plaques on the arms, legs, back of the neck and coccygeal and other regions. The idea that neurodermatitis is always lichenified is erroneous. I have repeatedly seen both the nonlichenified and the lichenified types in the same patient. The histologic picture of neurodermatitis is one of hyperemia, edema and cellular infiltration but definite vesicles are not found, as in eczema. The constitutional background of neurocirculatory instability necessary for the production of dyshidrosis, neurodermatitis and various other dermatoses has already been discussed.[12] A few of the symptoms are overactivity, restlessness, asthenia and vasomotor instability with a tendency toward low blood pressure and a low basal metabolic rate.

Most cases of nonlichenified, and some cases of lichenified, neurodermatitis of the face and neck are called eczema and are attributed to articles of clothing, such as fur collars. The two eruptions are similar, but eczema is more edematous and is vesicular. The following case is illustrative:

Case 2.—A woman, aged 37, first seen, Jan. 7, 1930, complained of a pruritic eruption on the neck and upper thorax. It had appeared in October and had been present since that time. A physician had made the diagnosis of eczema and incriminated a new mink coat. She had discarded the coat and had received local treatment with no improvement. She presented an erythematous, scaly, slightly edematous plaque over the anterior and lateral aspects of the neck, extending on to the anterior upper thorax. No vesicles could be seen. Her father had been an energetic, hard working organizer who had founded, and for several years was president of one of Chicago's most important institutions. The patient was hyperactive and overambitious. In order to put herself in fine physical trim, she played thirty-six holes of golf at full speed daily during the entire summer. She became fatigued, and the dermatosis appeared. Her blood pressure was 108 systolic and 78 diastolic, and her basal metabolic rate was minus 7 per cent on the first examination. The irregular appearance of the tracing and my experience with repeated readings on patients as active as this one suggested that her real basal metabolic rate was nearer minus 27 than minus 7 per cent. A diagnosis of neurodermatitis was made. Soothing local applications were combined with restriction of activities and a general slowing up. The dermatitis subsided rather promptly, and a few weeks later she stated that her friends were wondering why she had become so quiet, which showed that she was cooperating. The dermatitis did not recur.

Flexural dermatitis in childhood (located mainly at the flexures of the elbows and knees and at the back of the neck) is often called eczema, or seborrheic dermatitis. Here again one is dealing with neurodermatitis, primary pruritus and then dermatitis, due largely to scratching. These children present the aforementioned constitutional background, with a tendency to vasomotor rhinitis and asthma.

EXTERNAL IRRITANTS

I have stated that most cases of eczema are due to external irritation. The various types of irritants are: Physical, represented by solar eczema; this has been discussed recently by Goeckermann, Osterberg and Sheard[13] and by Greenbaum.[14] Chemical, constituting by far the majority of irritants. A comprehensive list of irritants has recently been presented by Weber.[15] My cases have been largely due to primrose, poison sumac, the rotogravure section of a newspaper, and preparations for the scalp. Under chemical irritants must be included irritating products from the living organisms, such as pyogenic bacteria and fungi. The former are responsible for the type of eczema called infectious eczematoid dermatitis (Engmann), found in areas bathed by purulent discharges and elsewhere. A more common example is dermatophytosis. The fungus lives and propagates in the stratum corneum and gives off its toxin which acts on the living epidermal cells.

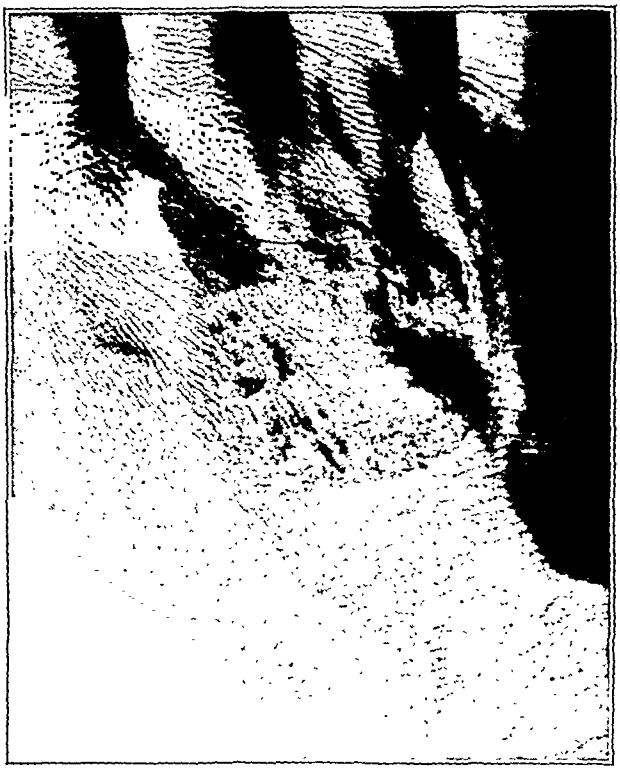

Fig. 3.—Exudative eczematoid neurodermatitis. The lesion is sharply demarcated. These lesions generally itch intensively, out of all proportion to their severity.

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[10] Sutton, R. L.: Diseases of the Skin, ed. 7, St. Louis, C. V. Mosby Company, 1928, p. 267.

[11] Stokes, J. H.: Eczema Problem, Am. J. M. Sc. **179**: 69 (Jan.) 1930.

[12] Becker, S. W.: Dermatoses Associated with Neurocirculatory Instability, Arch. Dermat. & Syph., to be published.

[13] Goeckermann, W. H.; Osterberg, A. E., and Sheard, Charles: Eczema Solare in a Case of Hematoporphyrinuria, Arch. Dermat. & Syph. **20**: 501 (Oct.) 1929.

[14] Greenbaum, S. S.: Dermatoses Due to Light Sensitization, Am. J. Dis. Child. **34**: 81 (July) 1927.

[15] Weber, L. F.: A List of Cutaneous Irritants, Arch. Dermat. & Syph. **21**: 761 (May) 1930.

Depending on the sensitivity of the patient, the reaction may be negligible (slight maceration between the toes, generally between the fourth and fifth toes) or it may be markedly erythematovesicular and constitute eczema. The commonest locations are the feet, crural region, genitalia and beneath the breasts in obese women. The toxin may be absorbed locally and produce erythematovesicular dermatitis at a distant point, which must be considered eczematous although it is one form of the so-called trichophytids. This condition is infrequent in my practice, but is often seen in clinics of other countries. Peck[16] has recently written an admirable article on the condition as seen in the Zurich clinic.

TREATMENT

The prime consideration in the treatment of any disease is to ascertain and remove the cause. The difficulties in ascertaining and removing the cause of eczema have repeatedly been emphasized in the literature. An expert anamnesis often unearths one or more possible causative agents, and verification can often be made by means of the patch test.[17] This consists of the simple application of suspected substances. When these are liquids, a piece of muslin about 1 inch (2.5 cm.) square is saturated and applied to the normal skin. This is covered by a piece of oiled silk or paper, slightly larger, which in turn is covered by a still larger single piece of adhesive tape. A solid may be dissolved in water (neoarsphenamine) and the muslin saturated, or it may be made into a paste (building cement) and covered with the impermeable material and adhesive tape. The material may be allowed to remain for twenty-four to forty-eight hours, unless itching or burning is experienced earlier, in which case it may be removed. A positive reaction consists of erythema followed by edema and vesiculation. It is often possible to remove the offending substance from the patient's environment, with subsequent complete relief. In housewives' eczema of the hands, protection can often be obtained by the use of thin cotton gloves, over which rubber gloves are worn. The cotton gloves absorb the sweat and prevent maceration, and should be washed each time they are used. The gloves should be worn not only when the hands are put in water but also when the patient is working in dust and dirt.

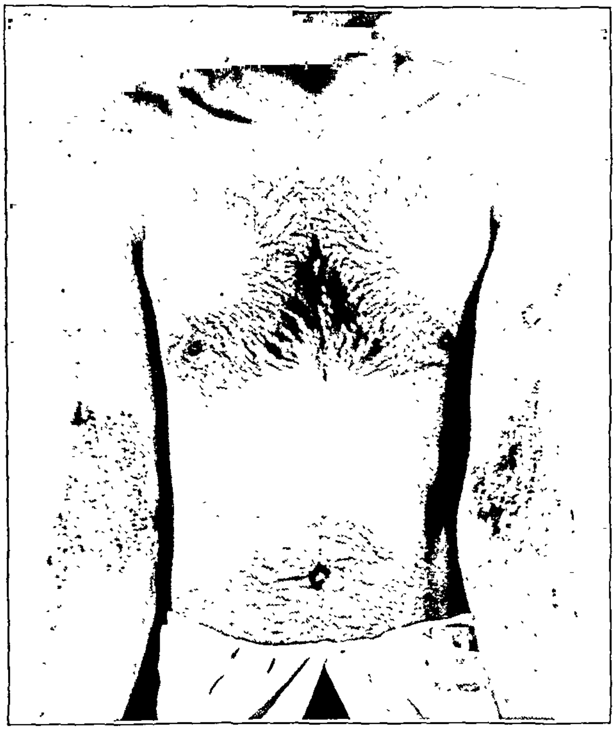

Fig. 4.—Neurodermatitis. This eruption is generally called eczema, but treatment for eczema will not relieve it. The underlying nervous instability and exhaustion must be corrected. This also applies to the condition shown in figure 3.

After the offending agent has been removed or search has been unsuccessful, the question of therapy per se must be considered. Desensitization therapy has been disappointing. Hazen[18] stated that a patient with hay-fever and ragweed dermatitis obtained relief from the hay-fever by desensitization, but dermatitis persisted. The various factors in the relation between allergic hay-fever and asthma and accompanying dermatoses have been discussed before.[12] Urbach[19] is using specific hemialbumose, administered by mouth, with apparent success in some cases.

The chief measures for relieving a patient with eczema are local. The external treatment of eczema is largely protective, since the inflamed skin has lost its normal protective factors (intact superficial layers). A fact too often overlooked is that these patients have hypersensitive skins; otherwise they would not have eczema. I dare say that more patients have perpetuated their eczema by irritating agents, garnered from their own or their neighbor's clock shelf or the corner drug store, or even at times prescribed by physicians, than by failure to remove the primary causative agent. Bloch has shown that patients with eczema are seven times more sensitive to common irritants than are noneczematous patients.

In the vesicular stage, the wet dressing is the method of choice. Potassium permanganate in the strength of 1 grain (0.065 Gm.) to a pint (475 cc.) of water, prepared fresh twice daily, is the best wet dressing for all purposes. It does not become excessively irritating if inadvertently allowed to dry (as has occurred with aluminum acetate and boric acid) and will take care of any secondary infection. The dressing should not be surrounded by an impervious substance, such as oiled silk or paper, as free evaporation is desired. The dressing should be kept wet but not dripping.

After the more acute signs and symptoms have subsided, a sulphonated bitumen zinc paste may be applied: sulphonated bitumen N.F., 1.8 Gm.; zinc oxide, 15 Gm.; sufficient petrolatum to make 60 Gm. This is applied conveniently with a smooth wooden tongue blade, and about as thick as butter on thinly buttered bread. It is renewed morning and night after gentle removal with olive oil. Water and especially soap should be avoided. The skin may be cleansed by the oil and egg yolk methods advised by Glaze.[20] The paste should be applied even after the skin appears normal, for protection, since many a recurrence has been occasioned by too early withdrawal of treatment. It must be emphasized to the patient that the skin remains hypersensitive for some time after the attack appears to be over. If the patient must work, and objects to his appearance, the paste may be changed to a more agreeable ointment, such as borated rose ointment (5 per cent boric acid in the official ointment of rose water or similar preparations), which may be applied in a thin coat and still furnish the necessary protection from dust and dirt.

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[16] Peck, S. M.: Epidermophytosis of the Feet and Epidermophytids of the Hands, Arch. Dermat. & Syph. 22:40 (July) 1930.

[17] Sulzberger, M. B., and Wise, F.: Ragweed Dermatitis with Sensitization and Desensitization Phenomena, J. A. M. A. 94:93 (Jan. 11) 1930.

[18] Hazen, H. H.: Allergic Dermatoses, Arch. Dermat. & Syph. 18:121 (July) 1928.

[19] Urbach, E.: Personal communication to the author.

[20] Glaze, A. L.: Two Methods of Washing Eczematous Hands, Arch. Dermat. & Syph. 9:621 (May) 1924.

The uncommon type of lichenified eczema must be treated by stronger applications, only after the sensitivity of the skin has been tested by a mild preparation, such as sulphonated bitumen zinc paste. If this produces no inflammatory changes, one may replace the sulphonated bitumen by salicylic acid and pine tar, beginning with 0.5 per cent of each and increasing the strength cautiously.

INFANTILE ECZEMA

Infantile eczema may be treated by wet dressings, followed by sulphonated bitumen zinc paste. A useful adjunct is White's [21] crude coal tar ointment, which may be used even in acute eczema. It should not be used on too large a surface at a time, as there is some danger of absorption of volatile substances from the tar. It may be used on one half of an extensive surface, and sulphonated bitumen zinc paste on the other half. After a few days, they may be reversed. The crude coal tar ointment must be made from prepared tar and strictly according to special directions. Ordinary preparations are often unbelievably irritating and it is a wise precaution to try the tar ointment first on a small area. A factor more important in infantile eczema than in the adult type is the prevention of irritation to the lesions. In many cases the child's arms must be tied in an extended position, and for this and other reasons the treatment of severe infantile eczema is a hospital problem. It is often advantageous to reduce the amount of food, as most of these children are overnourished. Elimination of certain elements in the food may help, but every case is a law unto itself and no definite instruction can be given. Water and especially soap should be avoided locally. Olive oil may be used for cleansing, and colloid water may be used for gently sponging the patient.

DERMATOPHYTOSIS

Hypersensitiveness is often overlooked in patients with fungous infections of the feet. If the eruption is very marked between the toes and extends on to the dorsal surface of the foot as an acute erythematovesicular or exudative dermatitis, it must be treated as acute eczema, which it is, and the fungicidal remedies must be disregarded for the time being. The salicylic acid containing preparations, such as Whitfield's ointment, cannot be used in these regions; Whitfield himself states as much, a fact not sufficiently appreciated. The use of potassium permangante wet dressing for a few days, followed by White's crude coal tar ointment will work wonders with this type of case. Stronger preparations can be used cautiously after the acute dermatitis has subsided. One repeatedly sees dermatitis venenata of the hands following the use of an ointment containing salicylic acid, for an imagined fungous infection. In my experience these eruptions of the hands have proved to be dyshidrosis. Fungous infection of the hands is rare in the Northern states. The fungus must be demonstrated in all cases before a diagnosis of dermatophytosis is made, and even then it may be a secondary invader in a preexisting dermatosis. Difficulties in identification of fungi have been discussed by Becker and Ritchie.[9]

The realm of therapy for eczema beyond these few fundamental procedures, including roentgen therapy, concerns only the specialist and is not within the scope of this paper.

Results of therapy are apt to be satisfactory. Some cases are notoriously resistant, but it is my belief that many of these cases are not true eczema but dyshidrosis or neurodermatitis and that they will yield to appropriate measures directed to these conditions. The general health of the patient should, of course, receive attention and any abnormality should be corrected. The various factors to be considered are given by Stokes.[11]

SUMMARY

A concept of eczema is presented which I believe will withstand scientific scrutiny. Some of the pitfalls in diagnosis (and consequently in therapy) are given.

Fundamental principles of treatment based on this concept are given which will be sufficient in a majority of cases.

The term "eczema" refers to a definite class of inflammatory dermatoses and may well be retained in dermatologic nomenclature.

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21. White, C. J.: Infantile Eczema and Examination of the Stools, Arch. Dermat. & Syph. 7: 50 (Jan.) 1923; The Use of Crude Coal Tar, ibid. 12: 896 (Dec.) 1925; Correction, ibid. 13: 242 (Feb.) 1926.

INDICATION FOR AND LIMITATIONS OF BIOPSY IN ABOUT FIVE HUNDRED DERMATOLOGIC CASES [*]

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The decision as to whether or not tissue should be removed for microscopic examination in a given dermatologic case involves a number of questions. The matters of scar, pain and discomfort, objection on the part of the patient, dissemination of the process involved and, finally, the question of the amount of information to be obtained by microscopic study of the tissue are all to be considered. One finds in the analysis of a series of cases that the opinion of the microscopist is about equal to that of the clinician in that certain cases are typical microscopically but obscure clinically, whereas the reverse is true in another group. The pathologist thus makes an excellent consultant, being the authority in some cases and in others corroborating the diagnosis only by correlation of the histologic and clinical picture. In inflammatory processes this correlation is of the utmost importance. The microscopist either will be led far afield or can only return a diagnosis of acute and chronic inflammation in most cases. Granulomas also are a difficult field microscopically, but here other laboratory procedures are of great assistance. In tumors the pathologist is probably more valuable than in any other group, but even here the clinical picture and progress afford sometimes the chief diagnostic sign. We have found, even in tumors with good choice of material, that occasionally when the clinical picture does not conform to the microscopic examination further study of the tissue frequently proves clinical evidence to be sound. Repeated biopsies were sometimes necessary for various reasons, such as to prove the first diagnosis on account of poor choice of material and to show the efficacy of treatment. However, in spite of various objections we believe that in a vast number of dermatologic conditions biopsy is desirable from the standpoint of the physician and justifiable and valuable from the standpoint of the patient. As mentioned by MacKee and Stone,[1] careful removal of tissue works little or no hardship on the patient, and, as shown by Bruecken[2] in general pathologic work, microscopic study of a lesion is a more valuable procedure to the patient in many cases than is complete destruction of the lesion and thus of the evidence by one of the newer procedures so popular now in dermatologic practice.

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[*] From the Department of Dermatology, University of Pittsburgh School of Medicine.

[*] Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

Removal of tissue used in this series of cases was either by electrical cutting or by the use of the circular knife, 0.5 cm. in diameter. We found the cutting current very valuable in large lesions, particularly in those to be removed as nearly as possible completely, but in smaller lesions the charring was too great to assure good histologic material. In the smaller lesions the half centimeter circular knife gave ample material for study. In cases of malignant or suspected malignant conditions, any cutting procedure was followed by charring, in deference to the opinions of many men who believe that the pathologic process may be disseminated in this way. X-rays or radium was used, usually immediately, and always as soon as a diagnosis of a malignant condition was made, to prevent possible dissemination of vital tumor cells. Sections were always studied both by a general pathologist and by a dermatologist, who after a study of both clinical and microscopic observations were in the majority of cases able to arrive at a satisfactory conclusion. The accompanying tables will give an idea of the material studied.

EPITHELIAL TUMORS

Our tables of epithelial tumors may be misinterpreted on account of the large percentage of cases not diagnosed before biopsy. These tumors were nearly all clinically diagnosed as malignant but not designated as certain types unless there was sufficient clinical evidence to make a definite diagnosis. We agree with Reimann[3] that, in epithelial malignant processes on the skin surface, differentiation clinically is chiefly a matter of metastases, and even in some epidermoid cases of low malignancy these may occur quite late. However, cases extending over a period of from five to twenty years and in one case thirty years, without metastases, were, we felt, certainly not epidermoid. One man, however, with an extensive superficial lupoid carcinoma of two and one-half years' duration, completely involving the face and neck, showed no metastases. Several sections from different areas all showed epidermoid carcinoma. We found, as did Owen[4] in her series of more than 800 cases, that malignant conditions of the mucous membrane were practically always epidermoid in type. We had one case of adenoma of the roof of the mouth of very low malignancy, but all others on oral mucosa were epidermoid carcinoma. The majority of mouth tumors were definable on metastases as well, for it was the unusual case that presented itself before the tumor had made considerable progress. Mixed cell tumors are impossible to diagnose clinically and require very careful microscopic study. Although found in only a relatively small percentage of cases they should be kept in mind because their very high grade of malignancy makes an early diagnosis of vast importance in regard to both prognosis and treatment. We found this type present in about 5.25 per cent of cases in this series, which is a somewhat smaller percentage than was reported by Montgomery.[5]

TABLE 1.—*Malignant Tumors*

	Diagnosed Before Biopsy	Not Diagnosed Before Biopsy
Carcinoma		
(*a*) Basal cell	5	54
(*b*) Epidermoid	55	84
(*c*) Adenocarcinoma	..	1
(*d*) Transitional (mixed)	..	11
(*e*) Paget's	2—(1-?)	..
(*f*) Cutaneous horn	3	..
Sarcoma		
(*a*) Myxosarcoma	..	1
(*b*) Fibrosarcoma	2	8
(*c*) Lymphosarcoma	..	1
Melanoma	6	4
Hemangio-endothelioma	..	7
Leukemia cutis	1	..
Hodgkin's disease (glands)	..	9
Mycosis fungoides	4	1

TABLE 2.—*Epithelial Tumors*

	Epidermoid	Basal Cell	Transitional
Face			
Forehead	7	12	..
Lip	*	3	1 mm.
Eyelid	5	2	4
Cheek	16	6	1
Chin	1	2	2
Ear	8	5	2
Nose	11	5	..
Scalp	5	10	..
Temple	2	1	..
Lower jaw	1	..	..
Cervical lymph node	1	..	..
Other Skin Areas			
Penis	1	..	..
Back	..	3	..
Neck	5	4	..
Ankle	2	..	..
Leg	3	..	..
Nipple (Paget's)	2 (1-?)	..	..
Mons veneris	..	..	1
Foot	1	1	..
Shoulder	..	1	..
Hand (dorsal surface)	13	..	..
Thumb	2	..	..
Abdominal wall	1	..	..
Groin	1	1	..
Wrist	..	1	..
Axilla	..	1	..
Chest wall	..	1	..
Mucous Membranes			
Tonsil	1	..	..
Tongue	4	..	..
Labia majora	2	..	..
Buccal	2	..	..
Gingiva	3	..	..
Glans penis	2	..	..
Hard palate	2	..	..
Soft palate	2	..	..

* 15 skin-23 mm.

We found early diagnosis to be of great value in the care of these cases, as some time ago one case presenting a mixed cell tumor of the lip, in which progress seemed satisfactory, went on to a fatal termination by neglect of treatment for a relatively short time. Five cases of lip carcinoma showed nodular cystic masses of the lower lip. Superficial destruction was not very great, and numbers of pus exuding sinuses were present in the growth. These cases bore a great resemblance to mycotic granulomas but cultures were always negative. Most cases of granuloma can be diagnosed by other procedures, but cases such as these show the value in time saving of early biopsy. Epidermoid carcinoma was the pathologic diagnosis in all, but on account of the resemblance of these to actinomycosis, several studies were made to be certain that we were not deal-

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1. MacKee, G. M., and Stone, M. J.: Surgery in Dermatologic Practice, J. A. M. A. **95**: 1315 (Nov. 1) 1930.
2. Bruecken, A. J.: Pennsylvania M. J. **33**: 445 (April) 1930.
3. Reimann, S. P.: M. J. & Rec. **131**: 449 (May 7) 1930.
4. Owen, May: Basal Cell Carcinoma, Arch. Path. **10**: 386 (Sept.) 1930.
5. Montgomery, Hamilton: Basal Squamous Cell Epithelioma, Arch. Dermat. & Syph. **18**: 50 (July) 1928.

ing with pseudo-epitheliomatous changes, which are very common in this and other granulomas. Four cases remained for treatment after confirmation of the diagnosis, and all showed satisfactory progress. Approximately a year later, two were sectioned again on account of the nodular character of a portion of the scar. One showed reactivity which was promptly stopped, while the other showed only inflammation. We have found examination of scars of tumors to be of value in several cases, sometimes when removed for suspected activity and other times when removed to obtain a better cosmetic result. We believe from our studies of tumors that it is in this field that the microscopist is of the greatest value, his opinion being often more reliable than clinical observation, but cooperation, particularly in the selection of material, is very necessary.

OTHER EPITHELIAL HYPERTROPHIES

Pseudo-epitheliomatous hypertrophy was found in several cases. In one the microscopic diagnosis was easy. In two others the diagnosis of malignancy was suggested, but the clinical picture did not conform to this opinion. One proved on further study of the tissue and later by blood count to be lymphatic leukemia of the skin, and the other was a chronic dermatitis of the skin of the leg. Others occurred in granulomas, factitious dermatitis and other types of ulceration. Four cases showing clinical characteristics of sebaceous cyst proved to be basal cell carcinoma resulting from malignant degeneration of some part of the cyst. Three other cases with the same clinical diagnosis proved to be epithelial cysts following injury with the implantation of epithelial cells in the subcutaneous tissues. One curious cyst, 1 cm. in diameter, was found on the tip of the index finger following a puncture wound, another following an injury to the back of the hand, while a third resulted from a hypodermic injection in the back.

Table 3.—*Benign Tumors*

	Diagnosed Before Biopsy	Not Diagnosed Before Biopsy
Pseudo-epithelioma	..	5
Multiple benign cystic epithelioma	2	4
Hemangioma	10	2
Lymphangioma	2	..
Lipoma	13	4
Angiolipoma	..	2
Fibroma	8	9
Fibro-adenoma	..	1
Adenoma	..	1
Papilloma	3	3
Xanthoma	2	3
Sebaceous cyst	7	1
Myxoma	..	1
Mixed tumors	2	2
Epulis	..	7
Warts	12	7
Keloids and scars	8	13
Dermoid cyst	..	3
Neuroma	2	..
Papillary cyst adenoma	..	1
Lymphoma	3	..
Nevi	29	..
Acanthosis	1	..
Epithelial cyst	1	3

MELANOMA

Ten cases of melanotic tumor were studied in this series. They were all of the highly malignant type described by Ewing[6] as true melanoma. One was extremely difficult to classify on account of the difficulty of eliminating epidermoid carcinoma as a factor. This case did not conform to Ewing's description completely, but we believed that either the epithelial invasion of the subcutaneous tissue was passive and secondary to the pressure of the melanoma, or it was a condition similar to pseudo-epithelioma, as described by Weidman.[7] Seven of these tumors had their origin on some part of the foot; the breast, cheek and sacral region were the seat of primary growth in the other three. Five were diagnosed from biopsy of the primary lesion, and five were diagnosed in the secondary growths some time after the primary tumor had been incompletely destroyed elsewhere. Unfortunately only one case was early and showed a willingness to submit to radical treatment. On the plantar surface of the instep of the right foot, a woman, aged 56, had a pigmented mole, which had begun to enlarge some weeks before examination. Wide excision was done, the incision extending as deep as possible. Section showed definitely a malignant type of melanoma. The surgeon after a frank discussion of the case with the patient received consent to amputate the leg below the knee. This was done eight months ago, and to date there has been no evidence of recurrence or metastasis. This is the only case of this series in which we have had any hope for a favorable result. In two other cases, in which pigmented tumors were removed, the bases were charred, and heavy x-rays applied showed fairly prompt recurrence. In both these cases, biopsy had shown the benign characteristics of the growths and we were able to reassure the patient and the referring physician that the prognosis was favorable. In both cases a second complete removal effected a cure. We believe from these experiences that biopsy is very important in pigmented tumors, because radical measures are necessary in the highly malignant types of growth; but, unless this malignancy is proved, one is not justified in subjecting the patient to the mutilation which results from radical surgical procedures. Basal cell tumors and warts at times contain many pigmented cells but have not the true melanomatous characteristics and are usually easily eradicated.

Table 4.—*Granulomas*

	Diagnosed Before Biopsy	Not Diagnosed Before Biopsy
Tuberculosis		
Ulcer	5	2
Verrucosa cutis	1	..
Orificialis	2	..
Tuberculosis of the hypoderm	2	4
Lupus vulgaris	1	1
Acnitis	2	1
Adenitis	3	7
Syphilis		
Gummas	2	9
Papule	..	1
Condylomas	3	1
Other Granulomas		
Sarcoid	1	..
Granuloma annulare	1	..
Actinomycosis	1	..
Blastomycosis	..	1
Sporotrichosis	3	..
Allepo boil	1	..
Coccidiomycosis	..	1
Granuloma inguinale	1	1
Paraffinoma and other foreign body granulomas	..	9
Granuloma	..	6
Tularemia	2	..

GRANULOMAS

In granulomatous processes we found microscopic examination of tissue to be most difficult and in the majority of cases to be the least helpful means of diagnosis at our disposal. History, clinical appearance, blood and bacteriologic examinations were often of far greater value than biopsy. However, in a few cases a typical microscopic picture is found and diagnosis by this means is possible. We have in several cases been given the correct diagnosis even of syphilis, when all other attempts to elicit other manifestations or history of syphilis were of no avail. In some granulomatous ulcerations we have encountered the pseudo-epitheliomatous proliferation, and here the selection and careful study of material is extremely important.

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[6] Ewing, J.: Brit. M. J. 2: 852 (Nov. 22) 1930.

[7] White, Cleveland; and Weidman, F. D.: Pseudo-Epitheliomatosis Hyperplasia at the Margins of Cutaneous Ulcers, with Especial Reference to Histologic Diagnosis, J. A. M. A. 88: 1959 (June 18) 1927

In spite of all these facts, we believe that biopsy is justified in granulomas even though it occasionally is of no great assistance. The processes are destructive in themselves, so that there will be only a slight increase, if any, in the scar, and, with proper after-care of the wound, dissemination of the infection will not result. Small biopsies were our rule in these cases, as the majority of granulomas can be made to recede without the use of destructive measures. In this group of cases, which are so baffling, we found that pathologic consultation with a complete review of clinical observations was both interesting and helpful.

Table 5.—*Inflammations*

	Diagnosed Before Biopsy	Not Diagnosed Before Biopsy
Lupus erythematosus	2	2
Papulonecrotic tuberculid	2	.
Rheumatic nodule	1	..
Erythema multiforme	4	.
Erythema nodosum	3	.
Lichen planus	6	.
Psoriasis	..	3
Urticaria pigmentosa	3	.
Prurigo nodularis	1	.
Pityriasis rubra pilaris	1	.
Bromiderma	3	.
Epidermolysis bullosa	3	.
Scleroderma	1	
Molluscum contagiosum	1	.
Granuloma pyogenicum	4	1
Granulation tissue	..	2
Gingivitis	..	3
Acute and chronic inflammations	5	15

INFLAMMATIONS

Inflammatory processes of the skin, both acute and chronic, form the difficult field for the pathologist. Save for a relatively small number of cases in which a typical microscopic picture is found, the observations of the clinician are of greater value than those of the pathologist. Consultation between these two with a review of both clinical and microscopic observations is of great benefit to both.

Table 6.—*Other Conditions*

	Diagnosed Before Biopsy	Not Diagnosed Before Biopsy
Pemphigus	2	..
Dermatitis calorica	1	..
X-ray dermatitis	3	.
Leukoplakia	1	2
Keratosis palmaris et plantaris	1	..
Erythrodermia ichthyosiforme congenitale	1	..
Progressive pigmentary dermatosis	1	..
Hemochromatosis	1	..
Pilonidal sinus	1	..
Cervical auricle	1	..
Lymph node	2	..
No diagnosis	1	..

The problem of histology in dermatologic practice is sometimes a difficult one. In certain conditions, particularly neoplasms, biopsy is essential. However, in inflammatory and granulomatous processes, particularly those in which the picture is not typical, great difficulty is sometimes encountered in the search for microscopic information of value. To become an expert in dermatologic histology requires, among other things, a great deal of time, which is not always available for the practitioner. General pathologists, unless their interest is stimulated, are prone to view dermatologic pathology lightly. We believe that frequent consultation between the clinician and the general pathologist will aid each greatly, particularly when each realizes the many difficulties by which the other is confronted.

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ABSTRACT OF DISCUSSION

Dr. Hamilton Montgomery, Rochester, Minn.: Frequently, when biopsy is made, the dermatologist is considering several differential possibilities. If these are kept in mind, a site will be selected for biopsy which will be most likely to portray the conditions under consideration. Thus, when mycosis fungoides is suspected, biopsy should be made from an indurated plaque rather than from an early lesion; in hematogenous tuberculosis an old lesion should be selected if one is searching for a tuberculoid structure and an early lesion if one is searching for the bacilli. In a granulomatous or fungating process, biopsy should not be made from the edge of an ulcer or sinus, as the histopathologic picture is likely to prove noncharacteristic. In malignant growths, biopsy from the advancing margin is more likely to reveal the true character of the disease. The dermatologist, therefore, must indicate the exact site for biopsy rather than leave this to an unexperienced assistant. A definite technic for taking biopsy should be established and the pathologic technician instructed regarding certain fundamentals necessary to obtain good histologic sections of the skin. At the Mayo Clinic we found that the Bard Parker knife with its razor-like edge and interchangeability of blades permits removal of tissue for diagnosis with the least amount of pain and permits close approximation of the edges so that only a fine linear scar results. It also permits removal of normal tissue for control. There is little danger of dissemination of epitheliomas from superficial skin biopsy. When, however, a diagnosis of melanoma is considered, I believe that the lesion should be widely excised and the diagnosis confirmed at the time of excision by frozen sections. Basal cell epithelioma and verruca senilis may show deposits of melanin pigment and should not be confused with melanoma. The authors found less than one-half the percentage of transitional epithelioma (basal squamous cell epithelioma) in their series of cases compared with mine; but the personal equation enters into the interpretation of these transitional lesions. The fundamental point is that basal cell epithelioma can, through metamorphosis, give rise to basal squamous cell or squamous cell tumors. In my experience, pseudo-epitheliomatous hypertrophy can usually be distinguished from true malignancy. The former is seen especially in tertiary syphiloderms and bromoderma. In addition to the conditions mentioned by the authors, biopsy is often of value in pigmentary disturbances of the skin, as by suitable staining together with the histopathologic changes a definite diagnosis is often possible. Finally, biopsy in exfoliative dermatitis may establish an etiology of psoriasis or arsenic (through the use of Osborne's method) or of one of the lymphoblastomas.

Dr. Fred D. Weidman, Philadelphia: In my capacity as laboratory director, perhaps I can be of most service by mentioning constructively a few mistakes made by clinicians sending material to pathologists. In the matter of selection, one should not pick the most spectacular lesion, *i. e.*, the bloodiest and largest, but a lesion in the midstage of the disease process. One should not pick one in which sloughing has occurred with necrosis in the center, for in such a lesion most of the diagnostically important process is destroyed. In ulcerated lesions, one should always select the peripheral part and remove at least that zone where the permeative processes of the granuloma or tumor may lie, intermediate between the normal and the diseased tissue. Commonly biopsy specimens are not taken deeply enough. In therapeutic procedures, the coagulating current has introduced a new complexity. In a sufficiently small lesion the coagulation which admittedly destroys the edge of the lesion will certainly produce necrosis, or at least modification of the entire lesion which is now sent for examination and diagnosis. That is one criticism of this technic, by and large, from the point of view of laboratory diagnosis. In interpreting these sections, one should keep in mind that the necrosis in the periphery of the section will not be part of the pathologic changes. Another thing that will modify the histologic interpretation is the preceding treatment, particularly radiotherapy. All know that the roentgen ray produces differing effects, depending on the quality of treatment. One gets hyperplastic epidermal effects as early results, and in later stages the fibroses, contraction of blood vessels, and so on. In submitting material for histologic study, one should always state whether treatment has been applied, what kind, and how much. When submitting material for analysis one should not be stingy with clinical information. Only too frequently the pathologist cannot get the clinician anywhere diagnostically, particularly in nonspecific inflammatory dermatoses. This is because there are numerous dermatoses which at one stage or another will resemble one another; yet it often happens that a little help from clinicians as to the appearance of the disorder, and the particular lesion taken, whether early or late, may make the difference between an unsatisfactory report and a satisfactory one. The pathologist is not a superman merely because he has a microscope. Reciprocity between clinician and pathologist is essential to optimal results.

Dr. Fred M. Jacob, Pittsburgh: The word epidermoid was used principally on account of the pathologists. It seems that this is the word they have chosen to signify squamous cell or prickle cell carcinoma.

RADIATION THERAPY OF CARCINOMA OF THE RECTUM *

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Carcinoma of the rectum constitutes one of the most interesting studies for the radiation therapist, because when a patient suffering from this condition is sent for irradiation it is usually with a gesture of despair, since the results from treatment of every kind have not been any too encouraging. According to Miles,[1] this form of cancer occurs in one third of all the cancers affecting the body, while Hoffman states that rectal cancer stands third on the list of cancers of the intestine causing death. To a limited extent and in a chosen group of cases, surgery offers a very good chance for cure. The type of case chosen for this group, however, is that in which the lesion is limited to the rectum, without extension to the surrounding structures. Such cases, Yeomans [2] states, are uncommon, and usually those referred for irradiation are inoperable, being almost always those in which the lesion is no longer limited to the mucosa of the rectum but involves all the adjacent tissues and lymphatic drainage areas.

The question as to when a rectal lesion is early or late is not easily answered, for the anatomic condition of the lesion may sometimes be quite extensive, with very few symptoms apparent to the patient, whose statement therefore as to when the lesion began may not fix the time correctly at all. Miles has made some special studies of the rate of growth of a rectal lesion, according to its situation in the canal. From his observations a lesion involving the mucosa near the ampulla takes about eighteen months to grow around the lumen of the intestine. On account of this slow growth it is not uncommon to have a patient first learn of a malignant lesion of the rectum following a general examination, even though he has heretofore had no symptoms referable to this part of the body. Or, a patient may have had "piles" for many months or even years with only slight symptoms, and yet on examination an extensive lesion may be found. A small lesion of a fungating character may give severe symptoms, thus calling attention to its presence in an early stage, and it is to the latter type that surgery offers the best chance for cure. Still, any rectal surgical procedure must, according to Miles, be radical to be at all effective. In spite of the fact that radical operation is borne especially well by young patients, Yeomans says that recurrence is usual. He states that in his series approximately 50 per cent of rectal cancer cases were operable. Operability, he says, varies with surgeons according to their own selection of cases. Cutting,[3] too, says that operability depends on the individual opinion of the surgeon. In all our cases the symptoms had existed for more than six months.

The anatomic situation of the rectal tumor plays an important part in any plan of therapy. A lesion on the outer surface of the anus is treated quite differently from one situated at or around the sigmoid section of the colon. Ewing [4] states that the rectum is the most frequent site of cancer of the large intestine. Miles says that rectal cancer is most frequently situated at the rectosigmoid junction, while, according to Turner,[5] 65 per cent of all rectal tumors occur within reach of the examining finger. At the Mayo Clinic, Bowing [6] reports, the majority of cases showed the lesion situated in the lower third of the rectum, while Yeomans states that the site of the lesion occurred in his series as follows: anorectal, 29; rectal, 212; rectosigmoid, 37, and sigmoid, 42. In our series, fifteen lesions were in the lower rectum, two around the anus and one at the sigmoid.

The relationship of this portion of the intestine to the surrounding lymphatic drainage system is important. The lesions around the anus, being most likely epithelial, drain through the superficial, and those directly in the rectal canal through the pelvic, lymphatics. Miles describes three groups of lymphatics for this portion of the rectum, the intramural, intermediary and extramural, thus accounting for the widespread involvement in advanced cases. Accordingly, any procedure necessary in caring for a rectal cancer must include treatment of the areas which are served by those lymphatic channels, and, of course, radical surgical procedures must include complete removal not only of the local lesion but also of that tissue to which, as experience has proved, cancer is prone to spread.

Since blockage of the intestine depends on the amount of tumor growth in its canal lumen—and according to Miles this is usually a condition incident to a long-standing growth—the question of when colostomy is indicated is a debatable one. Whether an immediate colostomy should be done is not answered by all operators alike. My associates and I have felt that, in cases in which some passage is possible for bowel movement, it is advisable to postpone making an artificial anus unless radical resection of the rectum is contemplated. We believe that the mental condition of the patient is very much helped if an artificial anus is avoided and drainage can be maintained without pain. Irradiation can be carried on without colostomy. In our series of eighteen cases only five colostomies were done, four before irradiation.

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* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Miles, W. E.: Surg. Gynec. Obst. **52**: 350 (Feb., number 2A) 1931.

2. Yeomans, F. C.: Proctology, New York, D. Appleton & Co., 1929.

3. Cutting, R. A.: Am. J. Surg. **10**: 255 (Nov.) 1930.

4. Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1928

5. Turner, G. G.: Surg. Gynec. Obst. **52**: 273 (Feb., number 2A) 1931.

6. Bowing, H. H.; Fricke, R. E., and Smith, N. D.: Radiology **13**: 443 (Nov.) 1929.

The method of radium therapy that today commands almost universal approval is the one first elaborated by the Curie Institute in Paris; namely, radium treatment of lesions with small doses of radiant energy over an extended period. Regaud states that in the treatment of any local lesion two factors must be considered: destruction of the malignant process and preservation of the normal surrounding tissues. To carry out this plan he advises the use of as pure a gamma ray as possible, and this is obtained by the employment of heavy filtration for the radium applicators, which are applied in such a manner as to do the least possible mechanical harm to the surrounding tissues.

Formerly we employed the method of intratumoral implantation of radium in the form of tubes or needles, as used by Quick,[7] Binkley,[8] Bowing,[9] Gordon-Watson,[10] and others. Bearing in mind, however, the usual resulting ulceration incident to the puncture method of irradiation, we felt that, if we were to apply the same sort of irradiation as has proved so valuable in the treatment of cancer of the cervix and body of the uterus, we would succeed in enhancing our results in connection with cancer of the rectum and as a result we have devised the present system of treatment.

The method of procedure is divided into four parts: (1) general constitutional, (2) high voltage roentgen treatment of the pelvis and lymphatic drainage areas, (3) radium treatment directly to the lesion, and (4) postradiation treatment.

Because of the pain associated with the rectal lesion, most patients are averse to having bowel movements, while others may suffer more or less from diarrhea; generally, they are weak, thin and dehydrated. To correct this condition, general and bowel hygiene is instituted daily, rectal lavage is given, and liquid petrolatum is administered by mouth. The patient is advised to take frequent meals of soft foods with high caloric value, and plenty of fluids are insisted on while the hygiene treatment is being carried out.

In the administration of high voltage roentgen therapy to the pelvis, the x-rays are directed through two anterior and two posterior pelvic fields and a perineal portal. The amount given to each area is from one to one and a half full erythema doses in quarter doses per treatment, one or two areas being treated daily, depending on the condition of the patient. Following this roentgen therapy, radium is applied to the rectal lesion. If the lesion is on the surface superficial to the anal canal, irradiation is either by the intratumoral method of implanting the radium into the lesion or by applying a surface mask thereto. When the lesion is in the rectal canal, the technic is as follows: A specially designed rubber rectal applicator[11] is prepared, containing the radium element in heavily filtered metal tubes. This rubber applicator has a central hollow core to allow for drainage of bowel fluids, cleansing, and escape of bowel gas. The inserted tip is of soft rubber and the rear end has a hard rubber connecting tube for attaching to an enema bag or to additional rubber drainage tubing, should the applicator be used high up in the rectum. The outer rubber shell is fenestrated at equal distances, to hold nine tubes, from 20 to 35 mm. in length and up to 5 mm. in diameter. A protective rubber sleeve is rolled over the bougie after the tubes are placed in the fenestras and this holds the radium in place. When the applicator is ready for insertion into the rectum, it is wound in puttee style, with a strip of 2 inch iodoform gauze, the end nearest the hard rubber outlet being slit so as to form two strings (like apron strings) which are tied over the tube in a large knot, with the long ends hanging loose for later use. After the tube is loaded, and wrapped with iodoform gauze, it is well greased with petrolatum and inserted into the rectum. Should the canal be blocked, it is dilated, sometimes a partial removal of tumor tissue is done, and the applicator is pushed in place. The long streamers of iodoform gauze are then strapped tightly with adhesive tape to each groin, and the knot on the tube is pushed in just behind the sphincter, which holds the tube in place. The number of radium tubes to be used and the dosage to be given depend on the position and type of the lesion being treated. While the tube is in place, the patient experiences but little discomfort, the hollow canal in the applicator allowing for the release of bowel gas and drainage.

Cases Treated by the Present Method (1929-1930)

Number of cases		18
Males		5
Females		13
Youngest		25
Oldest		69
Ages		Patients
25-35		3
36-49		5
50-65		8
Over 66		2
Marital state		
Married		15
Single		3
Results		
Living		15*
Dead		3
Pathologic conditions		
Adenocarcinoma		11
Squamous cell		1
Papillary adenocarcinoma		1
Colloid adenocarcinoma		1
Undifferentiated carcinoma		4
Colostomy		5
Before irradiation	4	
After irradiation	1	
Site of tumor		
Lower rectum		15
Sigmoid		1
Anal		2
Dead		
Two patients, one year after treatment		
One patient, 1 month after treatment		

* In the fifteen living patients, conditions were ameliorated in twelve, and three showed poor results.

The patient is kept in bed in a moderate Fowler's position and given a fluid diet only. Ten minims (0.6 cc.) of deodorized tincture of opium is given three times a day. The length of time the tube is left in place depends on the dose to be given and the amount of radium employed. The dosages we have used in our cases have varied from 2,500 to 8,000 milligram hours. After the planned for radium dose is given, the applicator is removed and the patient given daily enemas of salt water, and liquid petrolatum by mouth three times a day. The diet at first consists of fluid and soft foods, and gradually coarser foods are added. Following the radium treatment, a moderate colitis develops and may last for several weeks. Frequent rectal douches and at times a bland opium suppository ease the inflammation.

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[7] Quick, Douglas: Radium Report of the Memorial Hospital, New York, Paul B. Hoeber, 1924.

[8] Binkley, G. E.: Radiology **10:** 457 (June) 1928; Am. J. Roentgenol. **20:** 445 (Nov.) 1928.

[9] Bowing, H. H.: Radiology **9:** 179 (Sept.) 1927.

[10] Gordon-Watson, Charles: Acta Radiol. **10:** 345, 1929.

[11] Kaplan, I. I.: Radiol. Rev. & Chicago M. Rec. **51:** 517 (Dec.) 1929.

If the treatment is well planned, healing takes place in two months and recession of the tumor will be more or less complete depending on the involvement. Should the lesion recur, a second radium treatment may be given, but an interval of eight to twelve weeks must be allowed before the second treatment is carried out.

CONCLUSIONS

As surgical intervention, to be effective, must be carried out early in rectal cancer, radium therapy is offered as an equally efficient method of treatment for all types of cases. A newer method is described for applying radium to rectal lesions, based on the Regaud principle of small doses of radium applied over a long period of time. A special applicator for the method is also described.

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ABSTRACT OF DISCUSSION

Dr. Frank C. Yeomans, New York: Surgery, x-rays and radium are still the only effective means available for the treatment of cancer of the rectum. Radical excision remains the preferable method of treatment in operable cases. Operability varies from 25 per cent (Witzel) to 80 per cent (von Bergmann). In my series of some 400 cases, surgery has been advised in approximately 50 per cent. Radiation therapy should be employed, when possible, without colostomy. Nevertheless, colostomy is a beneficent procedure, frequently too long delayed. When properly executed, with practically no risk under local anesthesia, it is far less objectionable than is commonly supposed. Preliminary to the application of radium a cycle of high voltage roentgen therapy is important and should be routine not only to affect the tumor proper but especially for its effect on the area of lymphatic drainage. Before using intralumenal radiation, it is essential to define the limits of the tumor so that the entire neoplasm is irradiated. If the growth is so situated or of such conformation that its upper margin cannot be palpated, its limit of upward extension is determined by passing a proctoscope of small caliber and confirmed by a roentgenogram after a barium clysma. Radium is then applied to the entire area involved, either by capsules of radon in tandem in a rubber tube if the cancerous lumen is extremely narrow, or by the applicator devised by Dr. Kaplan, which possesses the great advantage of enabling one to limit the irradiation to any desired segment of the rectal wall. I have used this applicator with satisfaction in a number of cases. For accessible anorectal cancers, efficient irradiation may be obtained with gold implants or removable platinum needles of radon. The latter obviates puncture of the tumor, with the possibility of infection and ulceration. In women, when the tumor involves the anterior rectal wall, the needles are inserted through the posterior vaginal wall. There is a class of cases hopeless of cure, of which one sees many at the New York City Cancer Institute, in which the process involves the anorectum and surrounding structures, "freezing" all tissues in a malignant mass and rendering life utterly miserable. In many of these, under spinal anesthesia and after preliminary colostomy, I have rimmed out widely the entire area involved by electrosurgery and implanted seeds of radon or inserted the applicator. The relief from suffering and the palliation afforded are well worth the effort.

Dr. Isaac Levin, New York: It was very interesting to hear Dr. Kaplan's exposition of his method of treatment of cancer of the rectum, which is about the same as I employed up to ten years ago. For the last ten years I have been doing the insertion quite frequently. However, I wish to emphasize that in carcinoma of the rectum one must individualize and use various methods. As long as one uses every method properly and thoroughly, one will get good results. I still have a patient whom I treated by Dr. Kaplan's method twelve years ago. The woman is well today. On the other hand I have a patient, a woman, the mother of a physician, who came in with a carcinoma of the rectum which was just about on the borderline of inoperability. There was an annular tumor adherent to the vaginal wall. Irradiation alone would have created a stricture and necessitated anyway a subsequent abdominal colostomy. I did a two-step radical operation and then I used radium. Today, four year later, the woman is well. Whenever a carcinoma of the rectum is annular, a colostomy is indicated, because constriction is already present and stricture will appear soon. If at least one third of the lumen of the wall is free, it is possible to avoid a colostomy. In the case to which I referred, there was an annular tumor 4 inches above the anus and radical operation was out of the question. I did an abdominal colostomy with an intraperitoneal insertion through the laparotomy opening, as I always do in these cases, followed by an insertion into the lower segment of the tumor through the anus. That was four years ago. I examined the patient a month ago. There is only a vestige of the carcinoma left in the rectum. I hope, in another year, to close the colostomy. A fourth patient, a woman aged 20 years and a bride of one month, came three months ago with an annular carcinoma of the rectum 3½ inches above the anus. To build a permanent abdominal colostomy in this case would have been tragic. I removed through a sacral operation about 7 inches of the rectum, i. e., to a point about 3 inches above the tumor. I left the sphincter ani in situ, carried the upper end of the rectosigmoid down into the anal opening, stitched it over the sphincter, and united both ends of the sphincter. I inserted radium in the parasacral region where infected lymph nodes were present. Today, three months later, the sphincter functions well for gas and fluid and defecation is normal. These four cases illustrate the fact that one has to individualize every case.

Dr. H. H. Bowing, Rochester, Minn.: I would like to emphasize the remarks by Dr. Levin, especially the importance of individual treatment. The encouragement that I receive from treating carcinoma of the rectum may be considered under two headings: first, the occasional inoperable case in which benefit will follow treatment, and, second, the microscopic changes observed in the treated tumor tissue. I have observed cases of the inoperable group in which all vestige of the primary growth disappeared. Further, I have treated a few early operable lesions, the patients having refused operation, with a satisfactory local result and a normally functioning rectum. Almost all patients accepted for treatment derive some benefit from lessened discharges and decreased bleeding. Years ago a group of patients with carcinoma of the rectum were treated with radium as they presented themselves, and, following an interval of a week or ten days, a posterior resection was done. This method was soon abandoned. Edema increased, and bleeding and wound infection occurred. Today the significance of permitting sufficient time to elapse between the treatment and the operation is fully appreciated. This group furnished valuable material for study. The cases varied in extent, location and grade of malignancy. The interval between treatment and operation varied. Representative sections were taken from the operative material and studied microscopically. Briefly, those factors that MacCarty reported as enhancing longevity in the untreated case were found to be accelerated, hastened or favorably influenced in all cases. The surgeon appreciates his limitations in the treatment of certain cases. We, as radiologists, should appreciate our limitation in the treatment of this disease. The more we individualize treatment, the better our results will be. The full cooperation of all concerned is most essential. Dr. Kaplan's applicator is suited for the cases he presented. Yet to state what the technic should be for the average patient is impossible, because one must use the type of applicator best suited for the lesion under treatment. I have always felt that colostomy is not necessary in order to carry out treatment. One should irradiate the lesions effectively (conserving the normal bowel tissue if possible), and thus avoid colostomy. Further, those cases that are on the borderline for colostomy can be benefited by dietary measures and by instructing the patients how to get along with the imperfectly functioning rectum. A low residual, high caloric diet and instructions in the use of the low cleansing enema give much comfort to these patients. The patient or a relative should be told that a colostomy may have to be done at some future time; when necessary, it should be done at an elective time rather than as an emergency procedure. In treating female patients, the placing of heavily filtered radium in the vagina is of value. In treating extensive lesions by vaginal application it is possible to reduce the size of the local growth; thus the complications of hemorrhage and infection are at least in part eliminated.

DR. IRA I. KAPLAN, New York: I didn't mean to leave the impression that the eighteen cases I described and that we treated over the last two years comprised all the cases of carcinoma of the rectum we treated at Bellevue Hospital. I am becoming somewhat canny, like some of our surgical friends. I don't quarrel with the surgeons; they are our best friends. But we are commencing to choose some of the cases on which we want to do only radiation therapy. The surgeons work with us in every case, just as in our breast cases. We are trying now the new method of treating breasts with radium or roentgen rays, a combination of irradiation along with surgery. Throughout the course of those two years, we had in our service at Bellevue Hospital to see, and we treated a great many of those that we saw, probably about 200 cases of carcinoma of the rectum. I believe that Bellevue Hospital has one of the largest intestinal clinics in the country, and of course not every case is suitable for radiation methods. We do try to individualize and we try to do our best for cases that are sent to us. I thank the men who have discussed my paper, because I have learned a great deal from their remarks.

SHOULD THE INTERNIST KNOW SYPHILIS? *

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It is almost with fear and trembling, with many forebodings and misgivings, with an humble and contrite spirit that I approach the question which is the title of this paper and attempt to lay my answer before you. And yet was it not answered by the greatest internist of us all, the incomparable Osler, with his famous dictum to his students: "Know syphilis in all its manifestations and relations, and all other things clinical will be added unto you"?

It is obvious that in this enlightened day it is impossible for any one man to know everything in the entire field of medicine, but if one, even to a small degree, could approach the dictum of the Osler epigram, what a clinician he would be!

In the early days of the knowledge of syphilis, neither the physician nor the layman was, shall I say, burdened with a multiplicity of specialists? All followers of the healing art were at least presumed to know everything there was to know about it, so all physicians were syphilologists, and all syphilologists were simply physicians. Leoniceno, Torella and Fracastoro belonged to that era.

By the end of the eighteenth century, while specialists as they are known today had not yet been developed, medical men had dropped the almost savage custom of relegating surgery to the barbers, and the great syphilographers of the time, Astruc, Benjamin Bell and John Hunter, were surgeons.

But the trend toward specialism in medicine soon became evident and syphilis, along with its strumpet sister gonorrhea, being recognized as most frequently having its beginning in venery, the specialist in these diseases was developed. The recognition of the syphilodermas as symptoms and particularly the thought that they were all important symptoms led these specialists to add all diseases of the skin to all diseases of the genito-urinary organs in one specialty.

During the greater part of the nineteenth century, the diseases of these two parts of the human body continued in wedded bliss, and most of the most eminent syphilologists were both urologists, as they soon preferred to be called, and dermatologists. Later, however, they began to separate, the urologist going his way with his kidneys, his bladders and his prostates, and leaving syphilis more and more to the care of the dermatologist.

Through all this, the internist has sat back and calmly ignored to a greater or lesser extent the importance of syphilis to himself, simply because the vast majority of cases have their beginning on the genital organs and their most obvious manifestations on the skin. Is it any more logical to do this than to fail to be interested in smallpox, measles or scarlet fever?

There are often, even early in the course of syphilis, certain constitutional symptoms, not referable to any particular organ, which, while as a rule not of great diagnostic value, should arouse suspicion on the part of the clinician. One of the most striking of these is the fever, which has been described as occurring in a number of varieties, the most important of which are the irregular afternoon rise of temperature, rarely exceeding 101 F., and the continuous or "typhoidal" type, the temperature gradually rising after prodromal symptoms, such as malaise and anorexia.

Persistent headache and angina are frequent symptoms of early syphilis and, if found together, should always lead the clinician to investigate for further evidence of this disease. Fournier described three varieties of headache found in early syphilis: a diffuse cephalalgia, meningismus or occipital headache, and spotlike pains due to localized areas of osteitis. The headaches of late syphilis vary from rather mild, continuous pain to severe burning, blinding pain as found in the brain tumor, and often are most distressing.

The osseous system is the seat of various symptoms, both in early and in late syphilis, which often are most significant. Ostealgia in early syphilis, so-called osteocopic pain, for which no definite cause has been ascribed, may be due to a beginning osteitis, although not of sufficient degree to give rise to demonstrable pathologic change. Osteitis and periostitis with greater or lesser pathologic change, however, are not infrequent both in early and in late syphilis, and give rise to pains and swelling of varying degree. Arthritides, low grade inflammation of the joints, and even true polyarthritis, while rare in early syphilis, are observed with comparative frequency in the later stages.

Gastro-intestinal symptoms in early syphilis range from simple anorexia to projectile vomiting due to intracranial pressure. Actual gastritis due to syphilis in the early course of the disease has not been demonstrated, but from the fact that macular and papular lesions have been demonstrated in the bladder and are common in the mouth it is reasonable to suppose that they at times exist in the stomach. Late gastric syphilis, diffuse gummatous infiltration, single or multiple nodulo-ulcerative lesions and single large gummas, with their accompanying symptoms, are too well known to be more than mentioned.

The cardiovascular system is the seat of syphilitic involvement probably in all cases, and even early in the course of the disease sufficient pathologic change to cause symptoms sometimes, though rarely, takes place. Most significant of these instances are one or two cases of heart block which have been reported and which have responded to antisyphilitic treatment.

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* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

Late cardiovascular syphilis constitutes from 5 to 15 per cent of all cardiovascular disease and is found as aortitis, with or without aneurysm, myocarditis, involvement of the coronaries, endarteritis and phlebitis.

Involvement of the liver is the most frequent of all syphilopathies and was recognized by some of the earliest syphilographers, some of whom, in fact, looked on the liver as the chief focus of the disease.

Early syphilitic hepatitis, manifested usually only by a jaundice of varying degree, occurs in about 1 per cent of all cases, while icterus gravis as an early expression of the disease fortunately is very rare.

Late syphilis of the liver occurs as cirrhosis and as localized single or multiple gummas, the processes being found alone or together and the symptomatology depending on their location. Perihepatitis of varying degree of extension from the parenchyma of the liver also is not infrequently seen late in the course of syphilis.

It has been shown that the spleen is palpable in early syphilis in about 36 per cent of cases and in late syphilis, including latent cases, in about 5 per cent.

The presence of albumin, casts and red blood cells in the urine in a small percentage of cases of early syphilis which clear up under antisyphilitic treatment at times justifies the diagnosis of acute syphilitic nephritis, while in late syphilis there sometimes occur chronic nephritis, gummas and amyloid kidney.

That pulmonary syphilis has been mistaken for pulmonary tuberculosis, and vice versa, is not surprising, although it must be admitted that the former is comparatively rare. It occurs, however, as gummas, diffuse fibrosis and syphilitic peribronchitis, and is always a manifestation of late syphilis.

Neurosyphilis as one of the most important, if not the most important, of the consequences of spirochetal infection need only be mentioned, for a discussion of this phase of the subject would lead us much too far afield. May I simply remind you in passing that neurosyphilis is not necessarily of late occurrence; that meningitis, encephalitis, myelitis and cranial nerve involvement are not infrequently seen early in the course of the disease?

It is now recognized by all that the earlier syphilis is diagnosed, the better are the chances of cure. The chancre is the first sign of syphilis, and although very often it can be diagnosed with absolute accuracy on clinical evidence alone, even the most astute clinicians insist that a dark field examination be made for spirochetes on all venereal or other questionable sores before a definite conclusion is reached. And it is the reluctance, the indisposition, on the part of the general practitioner, the one who first sees the majority of chancres, to use the dark field, which is one of the great stumbling blocks to the eradication of syphilis. It has long been the hope of syphilologists, however, and the hope has not died, that a differential stain for *Spirochaeta pallida* will be developed which will be as easy of application as the Gram stain for the gonococcus. Then the general practitioner will have no excuse for not making an early diagnosis of syphilis; but even now, without such a stain, we as internists should insist on a more universal use of the dark field.

Is it not obvious, if we recognize every syphilitic chancre when the first slight swelling and induration of the epidermis makes its appearance and render that lesion noninfectious within twenty-four hours, which can be done, that the number of possible infections from any given chancre will decrease a thousandfold over the old method of waiting for the so-called secondaries to appear?

And now, what about these so-called secondaries? Are they really of much importance in syphilis? By that I mean, are they often of much assistance in the diagnosis of the disease? In the first place, with the increased use of the dark field and early treatment they are becoming less and less frequent. In the second place, while they may readily be confounded with other dermatoses, when they are present it is most rare that other symptoms and lesions are not manifest—the remains of the chancre, the superficial adenopathy, the alopecia. And, finally, the serologic tests are positive in practically 100 per cent of cases. Who has not seen even eminent dermatologists disagree over the diagnosis of a dermatosis and finally rely on the Wassermann or the therapeutic test?

So it would seem that, while the great burden of the control of this ubiquitous disease must rest on the general practitioner who sees it first and who must learn to use the dark field until a satisfactory differential stain has been devised, it is the internist who must take up the load when the disease has become generalized. I am not attempting to deprive the urologist or the dermatologist or any other specialist of the right to diagnose or treat syphilis in all its phases, provided his training is such as to qualify him for such work. But I do insist that syphilis is not a genito-urinary disease, is not a disease of the skin; it is a constitutional disease, a disease of the internal organs, and the internist is the one who is or should be best qualified to keep it within his domain.

There are, of course, times when the urologist and the dermatologist must be called on for assistance. I mean in those rare instances when the genito-urinary organs are involved other than by the chancre, and in those increasingly less frequent instances of atypical late syphilodermas. But at times we must also call on the surgeon, the gynecologist, the ophthalmologist and the otolaryngologist.

And now, in closing, may I offer as a corollary to the Osler epigram: If you would be a real clinician, you must know syphilis in all its manifestations and relations.

236 Central Avenue.

ABSTRACT OF DISCUSSION

DR. JOHN H. STOKES, Philadelphia: I *hope* I *have not* been asked to discuss Dr. Tompson's paper in an attitude of rebuttal. My own impressions on the matter are these: No one has a claim on syphilis *ipso facto*, unless it be the public health authorities, on the ground that it is an infectious, transmissible, controllable disease. Claims to syphilis must be established, if at all, by the right of special interest and enthusiasm, special aptitude, special opportunity and special training. There *is no domain.* There are gynecosyphilologists such as Gellhorn, pediatrosyphilologists such as Jeans, and obstetrosyphilologists such as McCord. Eighty per cent of the venereal disease in this country is cared for by general practitioners, and 60 per cent of this portion by a relatively small group of unnamed or hedgerow specialists who "just growed" à la Topsy, presumably because they were interested. Experience is convincing me that while every one must know the syphilology of his field, modern preventive syphilology is most wisely cultivated by a special group, the future to show us whether this is to be the venereologists as such, as in Europe; the urologists, the dermatologists, the general practitioners, as here; or the state public health officers, again as in Europe. I have not named the internist, for he is, I believe, at the wrong end of the problem, like the neurologist. His interests are largely consequences. *He must know the effects of established syphilis in* the individual. His emphasis will tend to be nonpreventive and consequential. With apologies to my hosts, see how little he has improved his opportunities or met his responsibilities in cardiovascular syphilis. The grand category of medical symptomatology is neurosyphilitic in origin, yet the internist writes in extenso on gastric, renal and hepatic syphilis, three of the real rarities of the field. The chancre, secondaries and infectious recurrences are the important lesions of syphilis, the whole future of the disease as a problem in preventive medicine. No wonder the dermatologists and the urologists claim it. My experience in the teaching of syphilology has impressed me with the futility, the pointlessness, of the "stress the dark field" slogan to the practitioner. A highly special instrument, expensive, technically complex, requiring training for its use, and hardly usable elsewhere than on the chancre, will never be in every doctor's office. Dark field examination is a centralized affair for laboratories, clinics and experts. What is really needed is a mechanism such as exists for gonorrhea smears, diphtheria cultures and Wassermann bloods. The published background and technic, studied in this country by Mahoney and Bryant, for example, exists and awaits development. May I close with a prediction? Unless the men who see the onset of syphilis—the chancre and secondaries, the syphilitic pregnant woman, the transmissible phases of the disease—wake up, syphilis will gravitate, not into the hands of the internist, nor even the lowly dermatologist, as it has abroad, but into the hands of socialized medicine and the state.

Dr. Leslie T. Gager, Washington, D. C.: In any active hospital practice—and I have observed that hospital practice is usually the end-stage of what began as some physician's private practice — there is abundant opportunity to answer Dr. Thompson's question in the affirmative; and if, as Dr. Stokes observes, the internist is beginning at the wrong end, I am not sure that it is our fault: it was Osler also who claimed syphilis, after the first few weeks, as a medical condition. Within recent months I have seen a woman of 40 with a recurrent tumor of the lip. This tumor had been removed six months before by a surgeon under the diagnosis of epithelioma; now, under two injections of neoarsphenamine, the tumor has disappeared. Again, a woman of middle age was admitted with extreme dyspnea and loss of voice. If we had known in the ward what was revealed at the necropsy, perhaps we should have been able to perform tracheotomy and thereafter control her syphilis of the larynx. Another woman presented a picture essentially of pulmonary disease: she came in with dyspnea and with absence of breath sounds in the left chest, due possibly, it was thought, to a new growth in the mediastinum. Necropsy showed a large aneurysm constricting the primary bronchus. How often the presence of frank aortic disease is overlooked, sometimes even in a syphilis clinic, I need not mention. This spring to a fourth year class of medical students I showed a patient with Charcot joints. Now if one sees three or four cases of Charcot joint a year, the condition becomes clear; but to those who have not seen it, the diagnosis is not so easy; and these students proceeded again to prove the old maxim that one has to know in order to see. Finally, in still another domain, was a woman with a headache persistent for a month; the physical examination was negative and neurologic signs were absent. Lumbar puncture and a positive spinal fluid proved the diagnosis of cerebrospinal syphilis. The first patient I have mentioned serves to call to mind that quotation which Sir John Bland-Sutton makes, in his delightful "Story of a Surgeon," of his teacher Hulke, who said "Physicians need not be good surgeons, but every surgeon should be a good physician"; and, after all, from my experiences with patients it seems that for guidance and counsel in the crises of life what the patient generally needs first is not so much a specialist as a real doctor.

Dr. A. I. Rubenstone, Philadelphia: I feel that syphilis does not belong to the dermatologist, neurologist or internist exclusively. It is a constitutional infection and belongs to all specialties alike. What is needed more is the cooperation of the dermatologist with the internist in all stages of syphilis, because even in early syphilis visceral complications should be sought and do occur that require the internist's attention. In an active hospital service, we internists see the end-results of syphilis, whether they be cardiovascular, gastro-intestinal, renal or neurosyphilis. It is in these types of patients, especially, that I make a plea for coordination between the syphilologist and the internist so that the best results and treatment may be obtained. It is obvious that in this class of patients intensive treatment of the syphilis, in the hands of a dermatologist, might prove harmful to the patient who not only suffers from the end-results of syphilitic infection but may have visceral damage due to other causes. Another phase of syphilis which one should bear in mind, and which Dr. Stokes continually emphasizes, is that the clinical manifestations termed neurosyphilis are really an extremely late manifestation of infection of the cerebrospinal stem; that easily 40 to 60 per cent of early syphilis passes through the nervous system and that the physician should recognize that a symptom-free patient with a negative blood Wassermann reaction does not mean that an infection of the cerebrospinal stem is not present that will yield the neurosyphilitic patients of the future. It is important, therefore, in order that late neurosyphilis may be held down to a minimum, that the physician pay particular attention to neurologic signs and negative spinal fluid examinations following the so-called cure of primary and secondary syphilis.

PERNICIOUS ANEMIA COMPLICATED BY ACUTE MILIARY TUBERCULOSIS

REPORT OF A CASE*

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Pernicious anemia complicated by tuberculosis is a comparatively rare condition. Only nine cases have been reported in the literature since 1898. Pernicious anemia complicated by acute miliary tuberculosis is even less common. Such a case is described in this paper, and the available reports of the condition first named are summarized.

REPORT OF CASE

History.—A Negress, a widow, aged 65, matron in a large department store, was admitted to the medical service of the Massachusetts Memorial Hospitals, Sept. 13, 1930, with a complaint of muscular weakness. She remembered few of the details of her history. She was born in Virginia and had been a resident of Massachusetts for the past sixty years. She had had three miscarriages; five children died sometime after birth, and two children were living and well. Her husband had been dead seventeen years. The menopause was reached gradually twelve years previously and there had been no symptoms since. The patient had measles when she was a child. She gave no history of previous hospital entries, injuries or operations. One sister was dying of cancer.

The patient had had several teeth removed, with relief of symptoms. Her appetite had always been good up to the present illness. She gave a history of moderate chronic constipation which was relieved by catharsis. Since the onset of the present illness, she had to take daily cathartics. Defecation had been painful, except during attacks of diarrhea, which began with the present illness. Diarrhea had occurred about once a week, usually lasting for a day. There had been no colic, icterus, ascites or abdominal pain. The patient's best weight had been 123 pounds (56 Kg.); she had lost 12 pounds (5.4 Kg.) in the six weeks preceding her admission to the hospital. She could move all parts of the body slowly while in bed, without pain but was unable to support herself in the seated or erect position. The remainder of the regional history was irrelevant.

Sudden onset of generalized muscular weakness occurred three weeks prior to admission; she attempted to get out of bed and fell to the floor. She had since been confined to bed. She felt weaker in hot weather; otherwise the condition neither progressed nor regressed.

Examinations.—The patient was fairly well developed, slightly emaciated, conscious, rational, fairly cooperative, and in no pain. The pupils were regular and equal, and reacted equally to light and in accommodation. The lips and gums were pale; the remaining teeth showed much tartar. The tongue was normal; it protruded in the midline and showed no tremors. Visible pulsation at the suprasternal notch was synchronous with the apex beat, which was best heard in the normal location; the heart was not enlarged on percussion. A loud systolic murmur, heard at the apex, was not transmitted. The cardiac rate was regular. The lungs were normal. The liver edge, felt two fingerbreadths below the costal margin, was not tender. The extremities showed fair active motion without weight bearing; active motion with weight bearing was absent. The biceps, triceps and knee reflexes were equal but sluggish. The blood pressure was 128 systolic and 58 diastolic. The cervix was slightly lacerated and atrophied. The uterus was retroverted and "frozen." The anal sphincter was tight and tender. No subcutaneous or submucous hemorrhages had occurred. The physical examination gave otherwise negative results.

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* From the Department of Pathology, Massachusetts Memorial Hospitals.

The hematologist reported that the results of the blood examination were typical of pernicious anemia; he suggested liver therapy and a daily morphologic blood study. The neurologist could not account for the increased temperature in this case of pernicious anemia. October 7, the blood culture was contaminated. The Wassermann, Kahn and Hinton reactions were negative. Roentgen examination of the lungs, October 9, showed a diffuse, hazy infiltration of both lungs. The heart shadow appeared enlarged (supine film). Roentgen examination of the teeth showed a diffuse pericementitis and a retained root. October 22, a blood culture showed no bacterial growth after seven days' incubation. The average of five complete, twenty-four hour urine examinations, approximately a week apart, showed essentially normal urine.

There was a persistent leukopenia varying from 2,500 to 5,500 cells per cubic millimeter. The average neutrophilic percentage was 85. From the time of the patient's admission to September 26 there were marked poikilocytosis, anisocytosis, anisochromia and polychromia. From then on, these conditions were less pronounced. From the date of entrance to September 24 (two days after beginning the liver therapy) the hemoglobin remained at 40 per cent. The erythrocyte count fluctuated from a minimum of 930,000 to a maximum of 1,095,000. The color index ranged from 2.0 to 1.5. The erythroblasts varied from 10 to 3 per hundred leukocytes. From September 25 until the patient died the hemoglobin fluctuated from 45 to 70 per cent; the erythrocytes from 1,045,000 to 2,220,000; the color index from 2.2 to 1.5, and the erythroblasts from 6 to 0.

From the time liver therapy was instituted to the time the first lung symptoms were elicited (October 5) the daily morning temperature was around 100 F. and the afternoon temperature around 102.5 F. The pulse rate averaged 90, and the respiratory rate averaged 25. From October 5 to October 12, the temperature changed to 99 in the morning and 101 in the afternoon. From October 12 to October 26 (when definite pneumonic signs were found) the temperature changed to 99 in the morning and in the afternoon. The pulse fluctuated between 90 and 120, the respiratory rate remaining unchanged. From October 26 until death, the axillary temperature again assumed a septic type and ranged from 98.6 in the morning to 101 in the afternoon. The pulse hovered around 130. The respiratory rate became irregular and rose to around 44.

Treatment and Course.—Liver therapy was instituted ten days after the patient's admission, but no change was noted. October 5 (twenty-three days after admission), the first lung signs were elicited; increased resonance and fine râles were heard over the entire right base. The patient felt no change. Thirty-one days after her admission (October 13) the right base showed a definite dulness and increased fremitus. Ten days later the patient became weaker and delirious; the legs were edematous and the eyes slightly icteric. The day before death, pneumonic signs were found scattered over both lungs; pitting edema of the legs was more marked; the icterus was slightly increased, and ascites was found. The patient was conscious but could not talk.

COMMENT

The hematologic examination, the weakness, loss of appetite and lack of tuberculous signs indicate the priority of onset of pernicious anemia. Unfortunately a complete record of the neurologic observations was not made, but apparently the neurologist was satisfied that they were consistent with pernicious anemia, excepting the increased temperature. An examination of the gastric contents and of the eyegrounds, a neutral red test, and a determination of the icteric index should have been made. Glossitis, subcutaneous and submucous hemorrhages, usually found in pernicious anemia, were absent in this case. An increased temperature in uncomplicated cases of pernicious anemia is not uncommon. On the institution of liver therapy, the hematopoietic improvement was slow but definite; tuberculosis set in before much headway could be made. The increasing severity of the tuberculous process did not completely retard the slow blood improvement. The icterus, edema and ascites were probably hepatic in origin. The onset of tuberculosis was insidious at first, but when the acute miliary process started, death was rapid. The high evening temperature, herpes, leukocytosis and the urinary condition, usual accompaniments of acute miliary tuberculosis, were absent in this case.

Death was due essentially to the tuberculous process. The original focus was the peribronchial lymph nodes, which showed complete destruction, as indicated by a dense fibrous wall encapsulating caseous material. The miliary tubercles, which studded the lungs, liver, spleen, peritoneum, omentum and mesentery, were atypical in their histologic appearance. There was a distinct absence of fibroblastic proliferation, lymphocytic infiltration, and foreign body giant cells. Caseation necrosis, monocytic infiltration and many acid-fast bacilli were demonstrated in each lung. The right pleural apex revealed a healed tuberculous scar. There were no tubercles found in the thyroid, heart, gallbladder, pancreas, kidneys, urinary bladder, suprarenals, uterus and adnexa or bone marrow. The brain and spinal cord were not examined.

The observations consistent with pernicious anemia were lemon-yellow abdominal fat; bright red abdominal and skeletal muscles; hepatic hypertrophy and marked fatty degeneration; pitting edema of the legs; ascites; slight splenomegaly, and markedly hyperplastic femoral bone marrow. The cavity of the left femur was completely filled by a semifluid bright red marrow. Microscopically it showed the spaces between the fat cells crowded with blood cells, chiefly erythrocytes. There were many nucleated red and white cells; many of the erythrocytes had pyknotic nuclei; those with young nuclei were chiefly megaloblasts. A few were undergoing mitosis; some, laryorrhexis. There were many neutrophilic and eosinophilic myelocytes and many myeoblasts (lymphoidocytes of Pappenheim). There were a few accumulations of yellow-brown pigment, but they were less numerous than is usual in cases of pernicious anemia. Glossitis, subcutaneous and submucous hemorrhages, fatty degeneration of the myocardium and atrophied gastric mucosa were absent. Incidental observations were myocardial fibrosis, chronic arteriolarsclerotic kidneys and slight chronic cholecystitis.

SUMMARY

A widowed Negress, aged 65, presented sudden muscular weakness, loss of appetite, and obstipation with occasional attacks of diarrhea of three weeks' duration. The past history was essentially irrelevant. On entry, there were atypical symptoms and signs of uncomplicated pernicious anemia. Liver therapy led to slow improvement. Twenty-three days after admission the first signs of pulmonary tuberculosis were found, which soon assumed the acute miliary form, resulting in death forty-eight days after admission, in spite of a definite improvement in the pernicious anemia.

At autopsy, atypical acute miliary tuberculosis was found in both lungs and in the liver, spleen, peritoneum, omentum and mesentery, the original focus being the peribronchial lymph nodes. Atypical conditions of pernicious anemia were present in the spleen, the liver and the femoral bone marrow. Ascites and edema were noted also.

REVIEW OF THE LITERATURE

In 1898, Hills[1] presented the first available case on the subject. Although his case of chronic glandular tuberculosis may have been complicated by pernicious anemia, the meager evidence presented does not permit any definite decision as to the type of anemia present. The same decision is arrived at from the case reports of Obraztsoff,[2] Fiessinger,[3] Labbé[4] and Pissavy.[5]

Ribadeau-Dumas'[6] case report was detailed enough to diagnose a definite severe secondary anemia accompanying the acute generalized miliary tuberculosis, which is a rather common condition.

The first authentic case was reported by von Dieballa[7] in 1907. The patient was a man, aged 55, ill with pernicious anemia. After seven months, signs of active pulmonary tuberculosis were found, and the patient died two months later. The improvement of the pernicious anemia was marked during this time; the intervention of tuberculosis had no apparent bearing on the improvement. Death was due to active pulmonary and peribronchial tuberculosis with cavitation. The femoral bone marrow activity resembled that found in our patient. A similar case was reported by Mathias[8] in 1926. The pernicious anemia in this case was complicated by chronic glandular tuberculosis. The following year, Neuburger[9] reported another case of pernicious anemia complicated by chronic tuberulosis.

Nine cases are found recorded in the literature since 1898 wherein tuberculosis and pernicious anemia were considered to be present in the same patient. Six possible cases do not offer substantial evidence of pernicious anemia and can therefore be disregarded.

Von Dieballa, Mathias and Neuburger reported authentic cases in 1907, 1926 and 1927, respectively. All three of these cases were complicated by chronic tuberculosis; pernicious anemia was of prior onset.

I present a fourth authentic case of the dual presence of pernicious anemia and tuberculosis. In this case the tuberculous process was of the acute miliary form. Pernicious anemia had, undoubtedly, the priority of onset and improved slightly with liver therapy in spite of the development of the complicating tuberculous process. Tuberculosis actually killed the patient.

82 East Concord Street.

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CONTROL OF TYPHOID IN RICHMOND COUNTY, NORTH CAROLINA

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This paper is intended to set forth a brief description of the methods adopted toward the eradication of typhoid fever in Richmond County, N. C. Richmond County has about 35,000 people, two thirds of whom are Negroes. It is situated on the southern border of the sandhill belt, near Pinehurst. It is a manufacturing agricultural and railroad center.

The county health department, functioning in cooperation with the state board of health, was organized in November, 1924. Typhoid had long been a problem in the county. As early as 1916 the state board of health had conducted an effective campaign against the disease with fine results, but the fight against typhoid was neglected from 1917 until the organization of the county health department.

In the first year of the organized health work, there were 35 cases with 10 deaths. In 1926 there were 19 cases with 5 deaths. In 1927 there were 3 cases with 1 death; 1928, 8 cases with 2 deaths; 1929, 5 cases with 2 deaths. More than 75 per cent were Negroes, none of whom had ever been inoculated.

Richmond County averaged for the nine years prior to 1927 22.8 cases a year. For the period of three years from Jan. 1, 1927, through 1929, the average was 5.3 cases a year. During the seven years from Jan. 1, 1918, to Dec. 31, 1924, Richmond County had 152 cases of typhoid with 26 deaths. A local paper carries a column captioned "Ten Years Ago Today" in which there are frequent references to typhoid cases and deaths. It was looked on as a matter of course at that time; it was not taken seriously by the public in spite of its great toll.

Over a period of five years, 5,058 complete immunizations for typhoid were given, and it is reasonable to assume that 2,000 of those immunized returned for reinoculation after three years. This means that 3,000 persons, or less than 10 per cent, are availing themselves of the protection offered by typhoid serum. The number of colored persons taking it was probably less than 0.5 per cent. So, the problem was to reach the negligent 99 per cent.

The specific methods of control in Richmond County have been based on three propositions: first, general health education; second, regulation of sewage disposal under the state sanitary privy law; third, immunization against typhoid.

HEALTH EDUCATION

Naturally, health education is the goal every one is striving for, being, of course, a promulgation of all other methods of control. In the educational methods attempted through all possible agencies, the fact that 40 per cent of the population of the county was made up of Negroes, many of them illiterate and ignorant, enforced the necessity for simplification in every detail. The Negro is nothing if not emotional and religious. With this in mind, the health officer, acting with the welfare officer, elicited the aid of the Negro clergy. As a result, the health officer was able to make talks directly to the congregations of practically every colored church in the county. The burden of the talks in the churches was to the effect that, if the worshipers were to be consistently religious, they must take pains to protect their bodies from disease. The response was even better than was anticipated. The Negroes were so converted to immunization that they assented to their children being given not only typhoid serum but also toxin-antitoxin, and large numbers of them were vaccinated against smallpox, so that what was primarily a typhoid campaign developed into a campaign for the general advancement of approved health measures. Fifteen hundred colored children received toxin-antitoxin during the last six months of 1929, and an equal number of white persons were immunized during the same period.

In these talks in connection with the clinic work, good screens, safe sewage disposal and pure water and milk supplies were stressed. The information the audience carried back to their more indifferent neighbors was worth a great deal in the advancement of the control measures. An intensive publicity campaign utilizing the best available spaces of the local press was employed. The motion picture theaters presented slides carrying brief warnings of the danger and advising inoculation. The schools contributed their part to the general program by bringing it to the attention of the children daily. The ministers of all the churches contributed materially to bringing it to the attention of their congregation. Circular letters were utilized, and the ordinary appeal through letters to the practicing physicians were sent out. The people on all sides were urged to take and to talk typhoid inoculation. The support of physicians was obtained by personal calls. In every suspected case the health officer made one or more visits with the family physician, and several visits to persons who could hardly be called suspects. Franked containers were placed in the hands of all physicians for the purpose of getting blood specimens, but as the health officer expressed a willingness to get these specimens for them, it was usually done by the officer since he would see the patients not later than twenty-four hours after the family physician had reported them. A typhoid case card was filled out on every suspect and considered as typhoid until ruled out by the blood culture, Widal, stool or symptomatology. Of seventeen individual records for 1929, five were positive typhoid, twelve were ruled out because the history, symptomatology, laboratory observations or ultimate discovery of the causative factor did not justify a diagnosis of typhoid. It is easy to believe that many of the cases diagnosed as typhoid in Richmond County in the past were probably something else.

SANITATION

The greater percentage of the decrease in typhoid has been due to better sewage disposal. During 1925 and 1926, the majority of the cases were in the towns of Rockingham and Hamlet. The installation of proper sewage facilities in the areas where typhoid occurred has marked the disappearance of the disease from the towns since 1926. So, the problem now is not how to take care of the small towns but how to control outbreaks in the rural districts; how to protect the vacationist, the farm tenant and the Negro. North Carolina has a state-wide sanitary privy law which provides that a householder is not permitted to have any kind of privy or system of sewage disposal within a mile of any municipality, that has not been approved by the state board of health. This law was especially valuable in the suburbs of the towns out of reach of the sewer lines.

The typhoid rate in Richmond County has decreased strikingly in the past few years, and it is felt that with these standards of control it should not rise. The foregoing plan can be applied in any rural county regardless of locality, the problem being to reach the ignorant members of all races, selling them the idea of disease prevention. Local conditions must govern the method of salesmanship. Each individual health officer, with a knowledge of his people and of their needs, must decide on the best method of health education to employ in his own community.

CONCLUSION

We attribute the decrease in typhoid in Richmond County among Negroes and ignorant white persons to the following:

1. Information by word of mouth is given to the uneducated public concerning typhoid and the value of better hygienic conditions.
2. Improved sanitary conditions, grade A milk, inspected foods and adequate sewage disposal cannot, with this type of person, be put over by pamphlets and newspapers. They must hear the word.
3. The cooperation of the public and of the medical profession in an oral program is essential.
4. The assistance of the newspapers with this class is useful only so far as educated persons are stimulated to impart information orally.

GONOCOCCAL BACTEREMIA IN A WOMAN, WITH CURE BY SURGICAL INTERVENTION *

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In May, 1930, Wheeler and Cornell[1] reported from the First Surgical Division of the New York Hospital a case of gonococcal bacteremia cured by operation. This probably represents the first case of its kind in surgical literature. Soon afterward, a patient presenting a similar condition was admitted to the Second Medical Division of the New York Hospital, and her case forms the basis of the present communication. A detailed description of the illness of this patient is herewith appended, because it is felt that the problem which presented itself is of considerable importance and that its solution opens up a new field in the therapy of this disease.

REPORT OF CASE

R. H., a woman, aged 26, was admitted to the medical service of the New York Hospital, *June 26, 1929*, with the chief complaint of fever and rash of four weeks' duration. Four weeks before, the patient came home from work unusually tired and suffering from a severe headache. That night she had a chill, followed by fever. This occurred on the first day of her last menstrual period. On the following day, a fine rash appeared over the feet and hands. By the third day, all the symptoms had disappeared. One week later there again developed chill, fever and rash, the latter being quite tender. The patient noted also pain and stiffness in both ankles. Since then, she had had irregular attacks of chills, fever, rash, and pains in the joints. Two days before admission, she had a severe epistaxis. For about a week she had noted palpitation. There was no history of cold, sore throat, chorea or rheumatism. The past history was completely negative. She was married seven months and had never been pregnant. Menses were always normal. There was no history indicative of gonorrheal infection.

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* From the Second Surgical Division of the New York Hospital, Service of Dr. Eugene H. Pool.

[1] Wheeler, G. W., and Cornell, N. W.: Gonococcal Bacteremia in a Woman, with Apparent Cure by Surgical Intervention, J. A. M. A. **94:** 1568 (May 17) 1930.

Physical examination showed that the patient, who was acutely ill, was well developed and well nourished. The tongue was coated, and the right tonsil was ragged. The heart was slightly enlarged to the left. There was a soft systolic murmur at the apex and a very rough systolic murmur at the pulmonic area. There was no palpable splenic enlargement. The lungs were clear. The skin over the back and over the anterior wall of the chest presented a coalescing honey-colored macular rash. On the extensor surfaces of both forearms and the flexor surfaces of the legs were many rose-red, somewhat nodular areas, varying in size from a dime to a five cent piece (from 18 to 21 mm.). Pelvic examination disclosed a soft boggy cervix. The uterus was small and anterior, and no masses were felt. The temperature was 104 F; the pulse was 110, and respirations were 22. Urinalysis gave negative results. The red blood cells numbered 4,980,000; the hemoglobin content was 90 per cent; the white blood cells were 17,250, and the polymorphonuclear leukocytes were 72 per cent. The Wassermann reaction was negative.

Three blood cultures, taken June 27, July 2 and July 5, showed a heavy pure growth of a gram-negative diplococcus. Great difficulty was encountered in obtaining subcultures of this organism, because it would not develop satisfactorily in mediums usually employed for the gram-negative coccus group. It appeared to grow only in the presence of small amounts of blood. The organism fermented dextrose, producing acid but no gas. It did not ferment maltose. It gave the microscopic and cultural characteristics of the gonococcus. July 24, a gram-stained film from the cervix for the first time showed numerous pus cells and gram-negative cocci, some intracellular. Cultures from this material were unsatisfactory.

The patient was observed for a long time from the medical point of view. The heart became somewhat enlarged, and systolic and diastolic murmurs developed at the apex. After the blood cultures were reported, the case was thought to be one of gonococcal endocarditis. The patient became somewhat anemic. The red blood cells dropped to 3,920,000 and the hemoglobin to 70 per cent. The white blood cells dropped to 22,000 and polymorphonuclear leukocytes to 74 per cent. Even though the course of the disease was prolonged and septic, the patient did not go down hill, as one would have expected, and her nutrition was remarkably well preserved. She was seen by numerous consultants, an ophthalmologist, an otologist and a gynecologist, and all their examinations gave negative results.

July 15, she was transferred to the Second Surgical Division. On the basis of the boggy cervix, a dilation and curettage was decided on. Visual inspection of the cervix did not show any signs of infection. The uterus was gently curetted, and some organized blood clot was obtained. This was reported as decidua. However, her condition did not improve and she still had a septic temperature. Five transfusions were given, two of the exsanguination type on the advice of Dr. Stetson. No improvement was noted. Finally, it was decided that something more radical was necessary. Since the pathologic site of gonococcal infection is in the cervix and tubes, an operation on these structures seemed indicated in spite of the negative observations. It was argued that, if the patient had a gonococcal endocarditis, the prognosis was hopeless and operation would do no harm. However, if no endocarditis was present, operation offered her her only chance. Accordingly, the operation was performed, August 10. A lower left rectus incision was made. No fluid was encountered. Grossly, the pelvis structures looked normal, with the exception of some reddening of the tubes. No exudate was present. A thickened vein was seen in the left broad ligament. Both tubes were removed with as much of the broad ligaments as possible, and the wound was closed without drainage. The cervix was then thoroughly cooked with the bipolar current of the endothermy machine.

That night, the patient's temperature reached normal for the first time in seven weeks. Except for an occasional rise, the temperature came down to normal. She was discharged from hospital six weeks later with the wound healed by primary and the cervical stump completely healed. All blood s after operation remained negative.

Pathologic examination of the tubes showed some polymorphonuclear leukocytes and sparse round cell infiltration. No organisms were seen. No venous thrombi were found in spite of a very careful search.

The patient has been seen many times since discharge from the hospital. She has been in perfect health ever since. The last examination was made, April 28, 1931. At that time she stated that she had gained 20 pounds (9 Kg.) and had no complaints. Examination showed a clear skin, a normal blood count, a healed cervical stump and a normal pelvis. The heart murmurs, noted during her stay in the hospital, were no longer audible, and there was no cardiac enlargement.

COMMENT

It is interesting to note that, of eight blood cultures taken, only three were positive for the gonococcus. This would indicate an intermittent bacteremia. This type of infection is quite different from the other variety of gonococcal bacteremia as observed at New York Hospital. In the latter, all blood cultures had been positive, and all cases have terminated fatally. They all gave definite evidence of serious involvement of the endocardium. The course of events in the illness of the patient here described would indicate the presence of an infected focus which introduced organisms into the blood stream at intervals. It therefore seemed fair to assume that, if the focus could be found and if it could be eradicated by surgical intervention, the patient would have a good chance of recovery. However, when there is indubitable evidence of involvement of the heart valves, the prognosis is hopeless.

In attempting to discover the location of the focus, one must bear in mind that the pathologic process of gonococcal infections is centered mainly in the genital organs, and, in the female, most often in the glands of the cervix and in the fallopian tubes. Very often, as in the case reported, and in that of Wheeler and Cornell, the organism may be present in the blood stream in sufficient numbers to cause severe constitutional reactions, yet locally, in the cervix and tubes, there may be nothing to indicate an inflammatory process. This may be evidence of a lowered virulence of the organism itself or of increased local resistance of the tissues.

It is well known that the streptococcus and the staphylococcus may produce an intermittent bacteremia when the underlying pathologic process is an infected thrombus in a blood vessel. Innumerable cases have been reported of rapid recovery following either ligation of an infected vein or ligation plus removal of an infected thrombus. It seems reasonable to suppose that the same pathologic condition was present in the case here reported, although this was not proved by microscopic section. It would seem fair to assume that by the operation performed the blood vessel focus was eradicated. It was probably present either in the veins arising from the cervix or farther out in the broad ligaments.

CONCLUSIONS

1. In certain cases of gonococcal bacteremia in women there may be an intermittent blood stream invasion. At the same time there may be little or nothing in the history, physical examination and clinical course to indicate the presence of a focus in the cervix, uterus or fallopian tubes.

2. The cause of an intermittent bacteremia presumably is a local focus with blood vessel involvement.

3. Operation in such cases should be considered. Timely and appropriate surgical intervention may offer the only chance of recovery.

50 East Seventy-Seventh Street.

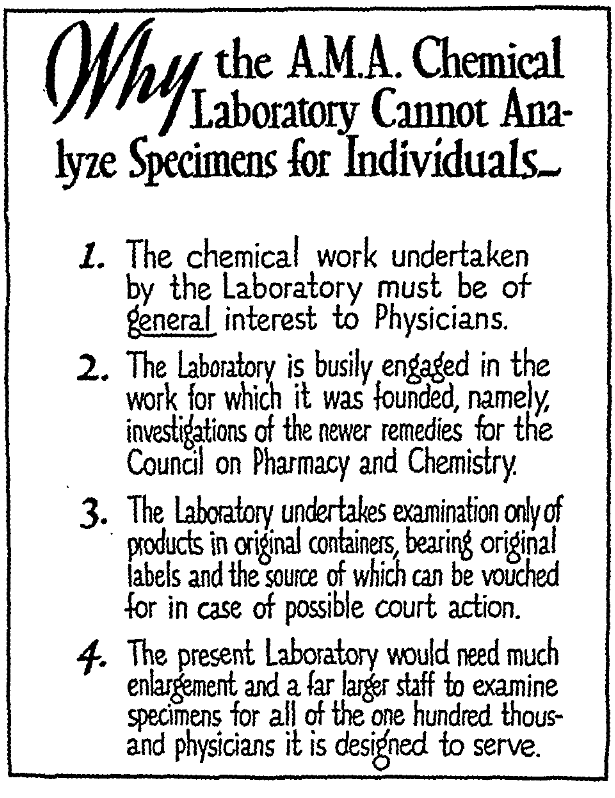
Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following reports.
W. A. Puckner, Secretary.

PANTOPON-ROCHE OMITTED FROM N. N. R.

Pantopon-Roche (Pantopium Hydrochloricum), marketed by Hoffmann-La Roche, Inc., is a mixture of the hydrochlorides of the alkaloids of opium containing 50 per cent of anhydrous morphine hydrochloride. It was accepted for New and Nonofficial Remedies in 1915. In accepting the product, and repeatedly thereafter the Council has insisted that the firm avoid in its advertising any claim that Pantopon-Roche is possessed of essential properties lacking in morphine. The Council has been obliged, however, to remind the firm that its advertising should not contain this claim either directly or by inference; and the firm has repeatedly signified willingness to abide by this condition.



Why the A.M.A. Chemical Laboratory Cannot Analyze Specimens for Individuals

1. The chemical work undertaken by the Laboratory must be of general interest to Physicians.
2. The Laboratory is busily engaged in the work for which it was founded, namely, investigations of the newer remedies for the Council on Pharmacy and Chemistry.
3. The Laboratory undertakes examination only of products in original containers, bearing original labels and the source of which can be vouched for in case of possible court action.
4. The present Laboratory would need much enlargement and a far larger staff to examine specimens for all of the one hundred thousand physicians it is designed to serve.

A reduced reproduction of a poster which was shown in the A. M. A. Chemical Laboratory exhibit at the eighty-second Annual Session of the American Medical Association at Philadelphia, June, 1931. This poster explains why the Laboratory cannot undertake chemical work for individuals.

Recently the following circular letter of Hoffmann-La Roche, Inc., was forwarded to the Council on Pharmacy and Chemistry by a physician:

> "September, 1930.
>
> "Dear Doctor:
>
> "So you really thought that patient you saw yesterday in violent pain could only obtain relief from an opiate? Well, without doubt, you were right, for in cases of that sort suffering from acute pain, an opiate is certainly a God-send.
>
> "But, when you pulled out your syringe and were preparing your hypo solution of morphine, did it occur to you just why you resort to morphine in such cases? We dare say not, for you have been using it for years thinking that there is nothing superior to morphine when you are confronted with painful conditions that demand the opiates.
>
> "Now, frankly, have you ever thought that there might be something other than morphine worthy of your consideration when you are called upon to use an opiate? You read the journals and attend medical meetings. What about Pantopon? Would this Roche narcotic be so strongly and continuously advocated in place of the old drug, morphine, if it did not possess some striking advantages?
>
> "Why not make use of our offer to place a supply of Pantopon, in both hypodermic and oral forms, in your hands? If you do, you will soon find that you will not only be using Pantopon in place of morphine but also advocating it among your colleagues.
>
> "Sincerely yours,
> "HOFFMANN-LA ROCHE, Inc.
> "Elmer H. Bobst,
> "Executive Director.
>
> "P. S.—Please see that you send us one of the 1923 Series, Federal Narcotic Orders, properly filled out and *do not forget to sign it*. The supply of Pantopon goes with our compliments. In event you do not have the narcotic form return the card to us, anyhow, so that we can at least send you a very interesting booklet on the drug that is replacing morphine."

The intent of this letter to indicate that the action of Pantopon-Roche is essentially different from that of morphine is plain. Furthermore, the letter fails to apprise the physician of the identity of the product, namely, that it is a mixture of the hydrochlorides of opium alkaloids, containing 50 per cent of anhydrous morphine hydrochloride.

From this continued infraction of the condition on which the product was accepted, it is evident that despite repeated expression of good faith the firm cannot be depended on to market Pantopon-Roche with claims which make it acceptable for New and Nonofficial Remedies. The Council therefore rescinded the acceptance of Pantopon-Roche.

PERNOCTON NOT ACCEPTABLE FOR N. N. R.

Pernocton, stated to be a 10 per cent solution of the sodium salt of the secondary butyl-beta-bromallyl barbituric acid, was submitted for consideration of the Council by Riedel-de Haen, Inc. The product is proposed for intravenous injection for production of "Pernocton sleep." Since the name Pernocton is therapeutically suggestive, the firm proposed to replace it with the name "Pernoston" and requested consideration of the product under the latter name; however, advertising as late as May, 1931, still bears the name Pernocton.

The Council's referee examined more than fifty papers on Pernocton and informally offered certain criticisms of the advertising to the Riedel-de Haen company. In reply the firm stated that all the papers cited by the referee had appeared in 1928, since which time great improvements have been made in the methods of administration. So far as the referee was able to determine, however, the only improvement is in recommending smaller doses, because the former doses had proved too dangerous. According to various writers, Pernocton had caused numerous deaths. Riedel-de Haen, Inc., submitted a list of 139 references, many of which the referee had read. The referee cannot now undertake an analysis of all the papers, but he subjected the following three recent papers submitted by Riedel-de Haen to a critical analysis:

Kautz, F. A. S.: "Pernocton": A Hypnotic and Amnesic Agent (*J. Med.*, March, 1931): In this paper Kautz reiterates many times that Pernocton is not used as an anesthetic but only to produce sleep. However, the doses used by him—up to 6.6 cc. with an additional 2.2 cc. if necessary after a few hours—are those which evidently produce narcosis.

McKesson, E. I., and McCarthy, K. C.: A Comparison of Sodium Amytal and Pernocton as Preanesthetic Hypnotics (*Brit. M. J.*, Nov. 29, 1930): In this paper the authors state that "when the patient becomes relaxed so that he cannot be roused by questions or gentle shaking, and respirations are even, regular and machine-like with gentle snoring, we assume that we are entering the stage of hypnosis." It is obvious that, when a patient cannot be awakened by questions or gentle shaking, when the respiration is machine-like, with gentle snoring, that patient is in narcosis and not in a condition of physiologic sleep.

Friedlaender, Bernard: Pernocton Sleep: Its Surgical Use and Therapeutic Indications (*Am. J. Surg.* **11**:485 [March]

1931): This paper embraces fourteen pages, of which four are devoted to a bibliography of 195 references, only 5 of which, however, are mentioned in the text. Of the eight pages of text, apparently less than one is original with the writer, the remainder being taken, apparently, from a discussion of the literature in which reference is made to thirty-six authors, only five of which, however, are mentioned in the bibliography. This part of the paper has the appearance of having been prepared by some one other than Friedlaender. Friedlaender gives a table (approximately one-sixth page) of 1,200 operations, and eight paragraphs of conclusions equal to about half a page, which is, apparently, all that he has contributed to this himself. This paper was sent by Riedel-de Haen, Inc., and has the appearance of having been largely prepared by the manufacturer's agent, though obviously one cannot say that that is the case. Nevertheless, when a writer mentions 31 papers, not one of which is included in the bibliography of 195 references, it is difficult to avoid the conclusion mentioned. Everywhere the writer mentions "pernocton sleep" but the text shows clearly that he was using doses which produced light narcosis, and he presents no evidence by which the advantages or disadvantages of Pernocton may be determined. This is true of the other two papers; such papers as these fail to show a proper critical attitude and lend themselves readily to use as advertising propaganda to those who do not take the trouble to analyze the literature carefully. Since these three papers are the only ones submitted to the Council, it is fair to assume that they are representative of the later literature of that subject.

The Council declared the name Pernocton therapeutically suggestive and held the product, whether marketed as Pernocton or as Pernoston, unacceptable for New and Nonofficial Remedies for lack of critical evidence that routine intravenous injection of potent narcotics is desirable or safe.

Committee on Foods

The following products have been accepted as conforming to the rules of the Committee on Foods of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

GOLD MEDAL FLOUR "KITCHEN TESTED"

Manufacturer.—Associate companies of General Mills, Inc., Minneapolis, Minn.

Description.—A moderately "strong" hard-wheat patent flour designed for general baking purposes in the home.

Manufacture.—This is a "medium strength" hard wheat flour designed primarily for "all purpose" home use; made from selected hard wheats raised in various sections of the country. The manufacture involves three distinct operations: (1) storage of the various types of grain with characteristic baking values and their proper blending to yield a flour of desired characteristics; (2) the cleaning and conditioning of the grain in preparation for milling; (3) the milling of the wheat and the separation of the desired flour portions. The blending of the wheat types is in accordance with the results of analytic, "experimental milling" and baking. The cleaning consists of removal of foreign materials and washing with water. The cleaned wheat is "tempered" by soaking in water to establish the proper moisture content for satisfactory milling. The milling consists essentially of alternate grinding and sifting processes which remove the bran and germ and reduce the endosperm to a fine flour.

The milled flour is bleached and treated to improve the color and baking quality. The bleaching agent is composed of benzoyl peroxide mixed with calcium phosphate (dosage 1 part to 50,000 parts of flour). The "improving agent" is essentially nitrogen trichloride (dosage from 1.5 to 3 Gm. for each 196 pounds). The final treated flour is packed in paper or cloth bags.

The flour selected for this brand is tested daily by the laboratory and the baking kitchen. The laboratory tests aid in controlling mill operations; the baking tests are to assure uniform baking results in the home.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	13.0 –14.5
Ash	0.38– 0.44
Fat (direct ether extraction method)	0.8 – 1.2
Protein (N × 5.7)	9.0 –12.0
Crude fiber	0.3 – 0.5
Carbohydrates (by difference) other than crude fiber	76.5 –71.4

Calories.—
3.44– 3.49 per gram
97.7 –99.4 per ounce

Claims of Manufacturer.—A good quality "all purpose" flour for use in home baking; standardized in baking characteristics for uniform performance under normal home baking conditions.

GOLD MEDAL FLOUR
"Kitchen-Tested"—Self Rising Flour

Manufacturer.—Associate companies of General Mills, Inc., Minneapolis.

Description.—A self rising flour. A mixture of patent flour (Gold Medal Flour—"Kitchen-tested"), baking powder containing monocalcium acid phosphate and sodium bicarbonate; and table salt.

Manufacture.—The flour, sodium bicarbonate and sodium chloride are mixed in a flour mixer for a definite period. The monocalcium acid phosphate is added and the mixing continued for a second definite period until homogeneous. The completed mix is packed in bags by automatic filling machines.

The self rising mix is regularly tested to assure proper mixing.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	13.0—14.5
Ash	4.0— 4.0
Fat (ether extract)	0.8— 1.2
Protein (N × 5.7)	9.0—12.0
Crude fiber	0.3— 0.5
Carbohydrates (by difference) other than crude fiber	72.9—67.8

Calories.—
3.30– 3.35 per gram
94.0 –95.1 per ounce

Claims of Manufacturer.—Gold Medal Flour "Kitchen-tested"—Self Rising Flour contains baking powder leavening and is especially adapted for cakes, biscuits and pastry baking.

GOLD MEDAL FLOUR "KITCHEN TESTED"
Phosphate Added

Manufacturer.—Associate companies of General Mills, Inc.

Description.—A moderately "strong" hard-wheat patent flour admixed with 0.5 per cent monocalcium acid phosphate; adapted to requirements of the Southern markets.

Manufacture.—Monocalcium acid phosphate to the extent of 0.5 per cent of the final mixture is added to the regular Gold Medal Flour "Kitchen-Tested" and thoroughly mixed in a batch mixer.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	13.0–14.5
Ash	0.8– 0.8
Fat (ether extract)	0.8– 1.2
Protein (N × 5.7)	9.0–12.0
Crude fiber	0.3– 0.5
Carbohydrates (by difference) other than crude fiber	76.1–71.0

Calories.—
3.43– 3.48 per gram
97.4 –97.8 per ounce

Claims of Manufacturer.—A good quality flour containing added monocalcium acid phosphate to counteract the addition of excessive quantities of baking soda in biscuit baking and intended especially for Southern markets.

WALKER'S BIG DANDY BREAD AND WALKER'S REDI-SLICED BREAD

Manufacturer.—Walker Bread Company, Fort Worth, Texas.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 65 per cent patent flour of Southwest wheat, water, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, malt syrup, honey, lard, sweetened condensed skim milk and a mixture of calcium phosphate, ammonium phosphate, calcium peroxide and corn starch to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition.—

(proximate analysis)	per cent
Moisture (entire loaf)	34.6
Ash	0.9
Fat (direct ether extraction method)	1.6
Protein (N × 6.25)	9.0
Crude fiber	0.2
Carbohydrates (by difference) other than crude fiber	53.8

Calories.—
2.66 per gram
75.5 per ounce

Claims of Manufacturer.—A bread of good quality.

CERTIFOODS CERTIFIED NURSERY FOODS—GREEN PEAS

(Sieved). Vitamin Content Guaranteed

Manufacturer.—Curtice Brothers Co., Rochester, N. Y., subsidiary of the Maltine Company, New York.

Description.—Canned sieved green peas. The minimum content of vitamins A, B and C is certified and expressed on the label in vitamin units. No sugar or salt is added.

Manufacture.—Manufactured by essentially the same procedure as that described for this company's Sieved Green Beans.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	87.0
Total solids	13.0
Ash	0.38
Fat (ether extract)	0.5
Protein (N × 6.25)	4.3
Reducing sugars before inversion as dextrose	0.0
Reducing sugars after inversion as invert sugar	2.0
Sucrose	1.9
Crude fiber	0.7
Total carbohydrates (by difference) other than crude fiber	7.1
Calcium (Ca)	0.02
Phosphorus (P)	0.07
Iron (Fe)	0.003

Calories.—
0.50 per gram
14.2 per ounce

Vitamins.—The product is guaranteed to contain not less than 300 units of vitamin A (Sherman method), 5 units of vitamin B (complex) (Sherman and Spohn method) and 3 units of vitamin C (Sherman-LaMer method) per ounce.

Claims of Manufacturer.—Essentially the same as those for this company's Sieved Green Beans.

CERTIFOODS CERTIFIED NURSERY FOODS—GREEN BEANS

(Sieved). Vitamin Content Guaranteed

Manufacturer.—Curtice Brothers Company, Rochester, N. Y., subsidiary of the Maltine Company, New York.

Description.—Canned sieved green beans. The minimum content of vitamins A, B and C is certified and expressed on the label in vitamin units. No sugar or salt is added.

Manufacture.—Green string beans, Refugee variety, are harvested, pulled, snipped and delivered to the packing plant all on the same day. The cut beans are blanched for five minutes at 87 C., washed with cold water, packed solid in number 10 tins and covered with salt free boiling water; the tins are sealed and processed for forty minutes at 116 C., stored, and puréed as required.

For puréeing, the canned beans are emptied into a steam jacketed kettle, heated slowly to 71 C. with slight stirring, and are pumped into a cyclone in a glass lined chamber containing nitrogen atmosphere only. The mass is broken down to pass a 0.033 inch screen and falls to the chamber bottom; it is drawn off into the bowl of filling machines and held at 71 C. by means of a small steam coil during the filling of the cans. The cans (4½ ounce size) are immediately sealed and processed for forty minutes at 115 C.

The entire puréeing process is accomplished in an atmosphere of nitrogen gas to protect the vitamin content. No air is permitted to enter the equipment during the operations.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	94.8
Total solids	5.2
Ash	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Reducing sugars before inversion as dextrose	1.3
Reducing sugars after inversion as invert sugar	1.7
Sucrose (by copper reduction)	0.3
Crude fiber	0.6
Carbohydrates (by difference) other than crude fiber	3.1
Calcium (Ca)	0.04
Phosphorus (P)	0.02
Iron (Fe)	0.003

Calories.—
0.17 per gram
4.8 per ounce

Vitamins.—The product is guaranteed to contain not less than 250 units of vitamin A (Sherman method), 3 units of vitamin B (complex) (Sherman and Spohn method), and 2 units of vitamin C (Sherman-LaMer method) per ounce.

Claims of Manufacturer.—These puréed beans are prepared by scientific procedure for maximum protection of the natural vitamin content. The vitamin values are constantly checked and minimum quantities determined are expressed in units on the label. The product is recommended for use in infant feeding and for convalescent and special diets in which a smooth diet is indicated.

JERRY'S KEW-BEE REDI-SLICED BREAD

Manufacturer.—Jerry's Bakery Company, Terre Haute, Ind.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, a mixture of 70 per cent of short patent flour of Southwest wheat, water, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate are mixed in a high speed mixer. The sponge dough is fermented for from four to six hours, after which are added flour, water, salt, sucrose, lard and sweetened condensed skimmed milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition.—

(proximate analysis)	per cent
Moisture (entire loaf)	36.5
Ash	1.0
Fat (direct ether extraction method)	0.7
Protein (N × 6.25)	8.5
Crude fiber	0.2
Carbohydrates (by difference) other than crude fiber	53.1

Calories.—
2.53 per gram
71.9 per ounce

Claims of Manufacturer.—A bread of good quality.

DROMEDARY CRANBERRY SAUCE (STRAINED)

Manufacturer.—The Hills Brothers Company, New York.

Description.—A cooked, sweetened, sieved cranberry sauce.

Manufacture.—Cape Cod cranberries graded on the basis of flavor, color and soundness are cooked in boiling water in tin-lined kettles, and sieved through monel metal screens. The screened mass is mixed with sugar, cooked in aluminum kettles to a sugar concentration of from 43 to 45 per cent (by refractometer reading) and packed hot (90 C.) in enamel-lined cans.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	54.6
Ash	0.3
Fat (ether extract)	0.3
Protein (N × 6.25)	0.2
Reducing sugars, as invert	39.4
Sucrose (copper reduction method)	4.8
Starch (acid hydrolysis method)	0.1
Crude fiber	0.4
Carbohydrates (by difference) other than crude fiber	44.2
Titratable acidity as citric acid	0.8

Calories.—
1.80 per gram
51.1 per ounce

Claims of Manufacturer.—A cranberry sauce of good quality.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new, always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, OCTOBER 3, 1931

FOODS AND FOOD ADVERTISING

Today advertising of foods, separate from the package container, is not controlled by any food statutes, and indeed is quite free of any efficient control. The writer of advertising for food products, aside from such limited knowledge of foods and nutrition as he may possess, has only a versatile vocabulary and his conscience as guides in dramatizing the virtues of the products he proclaims to the public. The god of Advertisia is not accuracy but sales reaction. Under these conditions, advertising for food products began to approach the tales of Hans Christian Andersen and the brothers Grimm as examples of what could be accomplished in legend and fantasy. Into this mass of mingled truth and deception entered the Committee on Foods of the American Medical Association. It is not surprising that its initial steps should have been greeted with apprehension and bitter deprecation by some of the organs of the food industry, of business and of advertising. If the food industry and food exploitation are actually so pure that they do not need reformation, why anticipate any hazard from a scientific investigation? The discussions of the work of the committee have not, however, acclaimed the wholly righteous character of the industry. They have answered the announcement of the creation of the Food Committee only with the argument that the food industry is already too much controlled. *Printers' Ink,* that stanch defender of advertising—right or wrong—replies only by saying that it is the first duty of the American Medical Association to rid the public of incompetent physicians. What *Printers' Ink* wants apparently is a list of blue ribbon doctors. Its editor obviously does not realize that through the creation of membership in the American Medical Association the organization has such a list and that this list is publicly available through the American Medical Directory.

The reason for the entrance of the American Medical Association into the food field is the development of scientific knowledge during the last twenty years that has changed the entire attitude of both the public and the profession toward the food question. The necessity for understanding the importance of minerals in relationship to human health, the necessity of the vitamins for the prevention of deficiency diseases and for the insurance of adequate growth and resistance to disease, the development of new knowledge regarding various types of proteins, carbohydrates and fats have made foods something beyond mere builders of energy for the human body. The organs of the advertising and food industries must realize that foods today occupy an equal place with drugs, biologic products and surgery in the control of human ailments.

Notwithstanding these facts, however, the medical profession need not have concerned itself with the propaganda made for food products had not the advertising industry forced the medical profession into the situation. It was not the medical profession that originated the phrases "health food," "physicians recommend," "body builder" and "food tonic." These slogans developed in the minds of advertising copy writers. In 1925, before the Committee on Foods was established, advertising of foods approximated closely the amount of space devoted to the advertising of drugs and exceeded the space devoted to biologic preparations in The Journal of the American Medical Association. Since 1905 the Council on Pharmacy and Chemistry has advised concerning the advertising of drug products. When it was realized that special knowledge was demanded to pass on the claims made for foods in the advertising pages, it became necessary to appoint a special committee for this purpose. The Committee on Foods was established to protect the readers of The Journal against improper claims made for foods. If the medical profession required such protection, how much more was the protection necessary for the average layman to whom the same claims were made as were made to physicians.

Only those who have been actively associated with the Committee on Foods since its inception can realize the vast amount of good already accomplished. Some of the fundamental principles established by the committee that deserve recognition include: 1. The appearance on the label of any food product of a descriptive statement showing exactly what the product is. The food industry is flooded with the use of fanciful titles for products which do not indicate in any way their actual ingredients. How is the person who happens to be allergic or sensitive to wheat, barley, eggs or some certain food product to know whether or not the food he eats includes any of these substances? 2. Since vitamins are of the greatest importance for the maintenance of health and for adequate growth, knowledge of vitamin content relative to the known content of substances rich in vitamins is important. When vitamin claims are made, advertising must state the vitamin content in relationship to these known substances. Since there are several processes for enhancing vitamin D potency in various food products, purchasers are entitled to know not only the process by which the vitamin content is enhanced but also the extent of this enrichment. 3. Even bread, the staff of life, has been subjected to such sophistication in various places as to make it necessary for the purchaser to know whether or not the bread he buys is what it is claimed to be.

The Committee on Foods up to June had studied some 500 products, of which only 128 had been accepted. By September it had studied 541 products, of which 165 had been accepted. The primary reason for this rapid progress has been the willingness of manufacturers who have submitted products to the committee to change labels and to correct advertising claims in order to make them acceptable. This willingness has been displayed not only by executives of some of the great food corporations but also by executives of smaller firms producing a single product. Such cooperation is encouraging. It signifies great good for the American people. It signifies particularly that the apprehensions of advertising agencies and of publications in the advertising field as to the work of the committee are wholly unwarranted.

RAW MILK VERSUS PASTEURIZED MILK

The beneficial influence on the public health which has accrued from the widespread practice of pasteurization of milk and dairy products has left little doubt in the minds of most public health workers as to the necessity for the more or less universal adoption of this simple preventive measure. Furthermore, the enormous increase in the production and consumption of milk and milk products has introduced new problems relating to its safety and wholesomeness. The responsibility of public health officials, milk distributors and dairymen in securing a clean and safe milk supply is indicated by the constantly recurring milk-borne epidemics in this country. During the six-year period from 1924 to 1929, 258 milk-borne epidemics were officially reported by state health officers. These epidemics involved 10,906 persons and resulted in the death of 371.

To the embarrassment of those public health officers who have succeeded, often after a bitter struggle, in securing the passage of laws requiring the pasteurization of milk and dairy products, reports of alleged superiority of raw milk over pasteurized milk appear from time to time. A recent example is an article by Scott and Erf [1] of Ohio State University, who conclude that milk subjected to heat loses its hematogenic and growth-promoting properties; that rats fed on commercial pasteurized milk fortified by cod liver oil and tomato juice failed to equal in growth and development rats fed on the milk of cows given a diet high in mineral vitamins; that the pasteurized milk from cows fed on a special diet rich in minerals does not produce the anemia usually reported as occurring in the albino rat following an exclusive milk diet. The influence of the diet of cows on the quantity and quality of the milk has been a matter of common knowledge for many years. The animal chosen for these experiments, the white rat, is one that is known to develop anemia when fed an exclusive milk diet. It is, however, hazardous to conclude that the same thing which happens to rats will happen to human beings, particularly infants, who are fed an exclusive milk diet. There is no convincing evidence at hand to indicate that the feeding of raw milk, pasteurized milk, or raw or pasteurized milk which has been boiled, has any appreciable influence on the blood picture of infants, children or adults on a milk diet. Many writers on infant nutrition recommend boiling cow's milk in order to destroy disease-producing organisms and for its favorable influence on the curd.

There is evidence that the antiscorbutic vitamin is largely destroyed by pasteurization or boiling. When one realizes that the amount of vitamin C in raw milk is insufficient to protect against scurvy and must be supplied by vitamin-containing adjuvants, this factor assumes little importance.

In the report of the Committee on Milk of the Conference of State and Provincial Health Authorities of North America,[2] attention is particularly directed to the Scott-Erf report. The committee emphasizes the fact that, in all but one of the four experiments conducted by these authors, the raw and the pasteurized milk used for experimental purposes were not from the same sources and therefore were not comparable. The raw milk was obtained from cows to whose regular feed had been added a "special complex mineral mixture," while the pasteurized milk was procured from a corner grocery store. Apparently no attempt was made to determine the diet of the cows supplying the commercial pasteurized milk.

The committee's critical analysis of the Scott-Erf report led to these conclusions:

> It would, therefore, be unscientific to draw any conclusions from these experiments with reference to the effect of pasteurization on the nutritive value of milk. In order to draw valid conclusions it is necessary to use the same milk for both series of animals, making sure that the only difference between them is the factor of pasteurization. This was done in only one of the four experiments and the number of animals to which the pasteurized milk was fed in this case was only eight, whereas the number of animals to which the corresponding raw milk was fed was fifty-two. Such a sweeping conclusion as is contained in the title of this paper should not be drawn from experimental results on only eight animals. In fact, the paper does not contain satisfactory evidence that the relatively slight difference between the average weights of the raw and pasteurized groups may not have been within the range of probable experimental error.

In view of the fact that reprints of the Scott-Erf report have been widely distributed by raw milk dealers in an effort to discredit pasteurized milk in the mind of the consumer, the necessity for close scrutiny of the evidence adduced by antagonists of pasteurization is apparent.

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[1] Scott, Ernest; and Erf, L. A.: Ohio Tests Prove Natural Milk is Best, Jersey Bull. & Dairy World, Feb. 11, 1931.

[2] Brown, E. G.: Report of Committee on Milk: Conference of State and Provincial Health Authorities of North America, Pub. Health Rep. **46**: 1455 (June 19) 1931.

ALLERGIC REACTION IN POLIOMYELITIS

The Pirquet reaction in tuberculosis and the Schick and Dick tests in diphtheria and scarlet fever may be supplemented by a similar local skin test for individual susceptibility to poliomyelitis. While Jungeblut[1] of Columbia University is extremely cautious in his clinical predictions and emphasizes the imperfections in his present test material and arbitrary dosage, his preliminary studies on normal, convalescent and artificially immunized monkeys[2] will lead clinicians to await future perfection and standardization of his technic. Jungeblut has apparently demonstrated that there are true allergic phenomena in poliomyelitis, an observation which future epidemiologists may conceivably regard as an epoch-making contribution to research on poliomyelitis.

Jungeblut's attempt to demonstrate such allergic phenomena was based on the experimental observations of the British investigators Fairbrother and Hurst[3] and the American investigators Kramer, Hendrie and Aycock.[4] These pathologists studied the febrile reactions following intracerebral inoculation of poliomyelitis virus in monkeys. They did not observe any particular change in rectal temperature during the first five to seven days after such inoculation but noted a sharp rise in body temperature from twenty-four to forty-eight hours before the onset of paralytic symptoms. Dr. Jungeblut, therefore, made similar temperature studies with convalescent monkeys reinoculated with the original virus strain from five to eighteen months after the cessation of acute symptoms. In place of the usual five to seven days afebrile incubation period, these monkeys, which recovered, gave an almost immediate fever response, the rectal temperature usually being raised from 3 to 5 degrees by the end of two hours. The temperature remained at approximately this level for from twenty-four to forty-eight hours. A similar prompt allergic fever was produced by injecting the original virus strain subcutaneously. Such injections, however, did not produce a demonstrable local skin reaction, nor were local allergic reactions caused by introducing the virus into the conjunctiva. Tests with monkeys previously vaccinated to poliomyelitis by the subcutaneous, intraperitoneal or intrarectal routes gave delayed allergic temperature responses, curves midway between those of late convalescent monkeys and normal controls. This result suggests that the Jungeblut reaction may in time be used not only as a qualitative but also as a quantitative test.

To adapt his reaction to clinical medicine, Jungeblut made studies of the febrile reactions with heat-killed poliomyelitis virus (65 C., sixty minutes). Reactions but slightly less than those produced with the living virus were recorded with these noninfectious agents. The test material finally selected for clinical use was a Berkefeld filtrate of a 5 per cent heat-killed virus-cord emulsion, with a similar preparation of normal monkey cord as a control, the test dose being 0.2 cc. injected intracutaneously. Thus far twenty-seven persons with a proved history of a previous attack of poliomyelitis have been tested by him. Febrile reactions were not noted in these tests. All of the twenty-seven subjects, however, reacted to the filtrate with a typical local allergic redness and swelling of the skin, increasing steadily from the fifth to the twenty-fourth hour. The slight earlier urticarial reaction which appeared in some children in the control injection subsided over night. The specific reaction was easily differentiated the next morning.

Dr. Jungeblut has not yet studied the relationship of his specific allergic skin reaction to the virucidal power of the patient's serum, nor are his data on normal individuals as yet sufficiently extensive to warrant detailed conclusions. He reports, however, a preponderance of positives among normal adults as compared with younger children, an observation in line with the known epidemiology of this disease.

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[1] Jungeblut, C. W.: Proc. Soc. Exper. Biol. & Med. 28: 1072 (June) 1931.

[2] Jungeblut, C. W.: J. Exper. Med. 53: 159 (Feb.) 1931.

[3] Fairbrother, R. W., and Hurst, E. W.: J. Path. & Bact., 33: 17 (Jan.) 1930.

[4] Kramer, S. D.; Hendrie, K. H., and Aycock, W. L.: J. Exper. Med. 51: 933 (June) 1930.

Current Comment

WHAT IS CLINICAL INVESTIGATION?

The expression "clinical investigation" is one that has attained considerable prominence since the beginning of the present century. Its implications are by no means clear. Does it refer to some unique mode of approach to the scientific problems that confront the student of disease? Does it rather imply a resourceful integration of the technics of the physiologist, biochemist and pathologist in an attack on the maladies of mankind? Or is it perchance merely the vague expression for the never ending search for means of the prevention, amelioration or cure of disease? Doubtless all these considerations have entered into the spirit of so-called clinical research, so that it has acquired a connotation as indefinite and comprehensive as has hygiene. In attempting to elucidate what he regards as true ideals of the clinical investigator, the president of the American Society for Clinical Investigation, Dr. Francis G. Blake[1] of Yale University, recently pointed out that the characteristic of research in clinical medicine lies not in the technic or the tools used but rather in the methods of approach. It is not primarily the search for disordered functions such as the devotees of the so-called preclinical sciences might be expected best to promote. Of course, as Blake admits, the clinical investigator must have recourse to animals to test his hypotheses, must go to the laboratory and become temporarily a pathologist or bacteriologist, a chemist or physiologist. That is, however, merely a temporary rôle from which he must sooner or later turn to that real consideration of the genesis of disease involving an understanding of all the conditions or circumstances under which it develops. This means a study of the interplay of specific agents, environmental factors, and human susceptibilities. To have discovered the tubercle bacillus, its biologic characteristics and chemical constitution, Blake remarks by way of illustration, does not explain tuberculosis; to have learned the environmental factors that favor its occurrence still leaves something wanting. The characteristics, susceptibilities and reactions of the host must also be known. The interrelationships of these three factors, and perhaps others, must be studied, Blake concludes, before one can arrive at an adequate understanding of the pathogenesis of the disease. This point of view was ably illustrated by the studies of Opie [2] in this field.

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[1] Blake, F. G.: Clinical Investigation, Science 74: 27 (July 10) 1931.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD IN CHICAGO, SEPT. 18 AND 19, 1931

The Board of Trustees met in Chicago on Friday and Saturday, September 18 and 19, 1931.

DATE OF NEW ORLEANS SESSION

The week of May 9-13 was officially approved for the New Orleans Session of the Association in 1932.

NEW EDITORIAL STAFF FOR QUARTERLY CUMULATIVE INDEX MEDICUS

A new editorial staff for the *Quarterly Cumulative Index Medicus*, consisting of Dr. Morris Fishbein, Miss Marjorie Hutchins (librarian), Dr. George H. Simmons, Dr. Fielding H. Garrison and a fifth member to be selected by the four named, was appointed.

RETIREMENT OF DR. NATHAN P. COLWELL

Dr. Nathan P. Colwell, who has served as secretary of the Council on Medical Education and Hospitals since its creation, and who has been on leave status for several months on account of illness, was permanently retired.

REQUEST FOR SURVEY OF STATISTICS ON MATERNAL AND INFANT MORTALITY

Consideration was given to the methods of compilation and interpretation of comparative statistics on maternal and infant mortality in the various countries of the world, and plans were discussed for securing a careful study of such statistics, for the purpose of definitely determining whether infant and maternal mortality in the United States is as much greater than in other countries as it is frequently stated to be.

COMMITTEE ON PREVENTION OF POISONING

A committee of five, consisting of Drs. Roger I. Lee, Cary P. McCord, Waller S. Leathers, Stanley H. Osborn and George H. Bigelow, was appointed to cooperate in the preparation of a bill for the enforcement of proper regulations with respect to various poisonous substances used in industry and in the home.

FURTHER DIVISION OF SPECIALTIES IN AMERICAN MEDICAL DIRECTORY NOT TO BE MADE AT THIS TIME

Consideration was given to a request for further specific division of specialties in the American Medical Directory, and it was deemed inadvisable to accede to this request at the present time.

FOURTH PUBLIC HEALTH CONFERENCE POSTPONED

Owing to the present financial depression, it was deemed advisable to postpone the Fourth Public Health Conference until some future date.

BARBITURIC ACID DRUGS

On recommendation of the Council on Pharmacy and Chemistry, the Board of Trustees requested the Bureau of Legal Medicine and Legislation to take whatever steps may be necessary to secure an amendment of existing laws, federal and state, as well as municipal, if in the opinion of the Bureau that is desirable, to the end that the habit-forming drug barbituric acid *and its derivatives shall be added to the present list that require declaration of the presence of those drugs on the label.*

DR. HOWARD T. KARSNER ELECTED TO MEMBERSHIP ON COUNCIL ON PHYSICAL THERAPY

On nomination from the Council on Physical Therapy, Dr. Howard T. Karsner was elected to membership on the Council on Physical Therapy to succeed Dr. Aldred Scott Warthin (deceased).

DISCHARGE OF ASSOCIATION'S REPRESENTATIVE ON COMMITTEE ON ATMOSPHERIC POLLUTION BY AUTOMOBILE EXHAUST GAS

As the Association's Committee on Poisonous Gases published a thorough report on the hazards of carbon monoxide, and as a new committee has been appointed by the Association to deal with matters of this kind, the Board decided to discharge its representative on the inter-societies committee on Atmospheric Pollution by Automobile Exhaust Gas, under the auspices of the American Chemical Society.

PARTICIPATION IN CELEBRATION OF TWO HUNDREDTH ANNIVERSARY OF THE BIRTH OF GEORGE WASHINGTON

The resolution from the United States Commission for the Celebration of the Two Hundredth Anniversary of the Birth of George Washington, which was referred to the Board by the House of Delegates, was given consideration, and it was decided *that the Association cooperate in the movement so far as it may* be possible to do so.

PROPOSED UNIFORM STATE NARCOTIC CONTROL LAW

The Bureau of Legal Medicine and Legislation was instructed to cooperate with the Commissioner of Narcotics and with state societies in preparing laws governing the use of narcotics.

SCIENTIFIC EXHIBIT

Drs. Ludvig Hektoen and Urban Maes were reelected for three years on the Advisory Committee of the Committee on *Scientific Exhibit, and appropriations were made for certain* phases of the exhibit to be made at the New Orleans Session.

CONFERENCE OF STATE SECRETARIES AND MEETING OF BOARD OF TRUSTEES

November 12 and 13 was set for the next meeting of the Board of Trustees, and November 13 and 14 for the Conference of State Secretaries.

MISCELLANEOUS BUSINESS

Consideration also was given to routine affairs and to other matters that will come up for discussion at later dates.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday and 10:30 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 5.	The Pleasures and Perils of Bathing.
October 10.	Speech Habits and Personality.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday, Thursday and Saturday, from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

October 5.	Everybody's Business.
October 7.	Are You Gambling With Life?
October 8.	School Days Should Be Health Days.
October 10.	Awakening Dormant Health and Happiness.

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[2] Opie, E. L.: The Harvey Lectures, 1928-1929.

CONTRIBUTIONS FOR MEMORIAL SALON IN PERSHING HALL

The sum contributed this week to the Pershing Hall Memorial in Paris brings the total to $2,498.10. The list of those who have contributed during the current week follows:

Roy G. Giles, M.D., Temple, Texas
William L. Hanson, M.D., East St. Louis, Ill.

The following contributors' names are republished, since they were not published correctly in their first printing:

R. F. Peterson, M.D., Butte, Mont.
George H. Ewell, M.D., Madison, Wis.
Col. E. L. Ruffner, M.D., Fort Riley, Kansas
L. F. Bender, M.D., Frankford, Philadelphia, Pa.
J. R. Robison, M.D., Salt Lake City, Utah.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALASKA

Health Supervisor Appointed. — Dr. Frank Samuelson Fellows, passed assistant surgeon of the U. S. Public Health Service, has been appointed district medical director for Alaska, a newly created position. Dr. Fellows, a native of Wisconsin, was graduated from the University of Pennsylvania School of Medicine in 1925 and joined the public health service in 1926. He has served in marine hospitals in Chicago, Norfolk, Va., and New York. In 1928 he had charge of fumigating activities in Puget Sound, Victoria, B. C., Townsend, Wash., and Vancouver, and since May, 1929, has been supervisor of public health activities in the district of Portland, Ore., and along the Columbia River. Alaska has a population of 30,000 natives scattered over an area of 586,400 square miles. The government has in the territory six hospitals, ten physicians and thirty-four nurses.

ARKANSAS

Society News.—Drs. Davis W. Goldstein and John M. Taylor, Fort Smith, addressed the Franklin County Medical Society recently on "Acute Appendicitis" and "Treatment of Syphilis," respectively.——The Independence County Medical Society was addressed in Batesville, August 10, by Dr. Lorenzo T. Evans, Batesville, on leukemia with report of case, and Dr. Van D. McAdams, Cord, on insect bites.——The September meeting of the Lawrence County Medical Society was held in Imboden; the program consisted of papers by Drs. Thomas C. Guthrie, Smithville, on quinsy; Gustavus A. Warren, Black Rock, differentiation of malaria from typhoid, and Shields Abernathy, Memphis, Tenn., cancer.——Drs. Matthew Wilson Searight, Memphis, Tenn., addressed the Mississippi County Medical Society in Blytheville, September 9, on "Affections of the Cervix"; Joseph D. Cleveland, "Treatment of Burns," and Emmett R. Hall, "Congenital Syphilis."

Committee on Heart Disease.—The officers of the Arkansas Medical Society recently formed a committee on heart disease to act as a clearing house for information on all phases of heart disease in Arkansas. This committee hopes to acquaint physicians of the state with some of the recent advances in the diagnosis and treatment of the disease by the publication of articles in the state journal and by the presentation of papers and the sponsoring of a scientific exhibit at the annual meetings. It is planned to offer opportunity for graduate work. The committee is also seeking the cooperation of other state organizations. According to the *Journal of the Arkansas Medical Society*, the members of the committee on diseases of the heart are Drs. Arthur G. Sullivan, chairman, Hot Springs National Park; Augustus C. Shipp, Little Rock; Arless A. Blair, Fort Smith; Nicholas F. Weny, Little Rock, and Hendric A. Ross, Arkadelphia.

CALIFORNIA

Health Officers Appointed. — Dr. John H. Hutton has been appointed health officer of Calipatria. Dr. Henry S. Rogers will succeed Dr. George R. Hubbell as health officer of Petaluma. It is announced that Avalon, Los Angeles County, is now under the supervision of the Los Angeles County Health Department, and that Willow Glen, Santa Clara County, has come under the supervision of the Santa Clara County Health Department.

Society News.—The annual Conference of California Health Officers was held in conjunction with the meeting of the League of California Municipalities at Del Monte, September 21-24. The program was devoted to the discussion of vacation health, public health nursing and administrative methods.——An executive committee has been appointed by Governor Rolph to carry on the program adopted at the White House Conference on Child Health and Protection. It will be known as the California Committee on Child Health and Protection and will consist of Dr. Giles S. Porter, director, state department of public health; Mrs. Reba Crawford Spivalo, director, state department of social welfare, and Mr. Vierling Kersey, director, state department of education.——The Alameda County Medical Society was addressed, September 21, in Oakland by Drs. Rossner E. Graham on "Parkinson's Disease"; Warren B. Allen, "Encephalitis," and Lloyd E. Kindall and Albert M. Meads, "Traumatic Rupture of Genito-Urinary Tract."——Dr. Arthur L. Bloomfield, professor of medicine, Stanford University School of Medicine, San Francisco, gave the opening lecture of the University of Southern California, September 15, on "Some Current Problems in Medical Education."

COLORADO

State Medical Election.—Dr. Edward Delehanty, Denver, was installed as president of the Colorado State Medical Society at its recent annual meeting in Colorado Springs, and Dr. Frank B. Stephenson, Denver, was made president-elect. Other officers elected are Drs. Harry C. Goodson, Colorado Springs; Lanning E. Likes, Lamar; Clarence E. Sidwell, Longmont, and Lawrence L. Hick, Delta, vice presidents; Lorenz W. Frank, Denver, constitutional secretary; Leo W. Bortree, Colorado Springs, treasurer, and Mr. Harvey T. Sethman, executive secretary, reelected.

CONNECTICUT

Hospital News.—A new surgical unit of 125 beds will be added to the New Haven Hospital through a recent bequest of $1,000,000 by Mrs. Sarah Wey Tompkins, according to *Science*. The new building, to be known as the Sarah Wey Tompkins Memorial, will have five floors, with practically all the facilities required for a hospital except operating rooms, which are in the adjoining Farnam Memorial Building. The erection of this building will bring near to completion a plan adopted five years ago for the modernization of the New Haven Hospital.

ILLINOIS

Health Bulletins. — Four new educational bulletins on health, published by the state department of public health, are now available for free distribution in the state. The titles of the bulletins are Tularemia in Illinois, Infantile Paralysis, Animal Experimentation, and Diet, Health and Intelligence.

Society News.—Drs. Robert S. Berghoff and John E. Kelley, Chicago, addressed the Alexander County Medical Society, September 18, on "Syphilis of the Heart" and "Some Forgotten Points in the Technic of Operation for Inguinal Hernia," respectively.——The McDonough County Medical Society was addressed, September 15, by Drs. Clifford U. Collins and James W. Sours, Peoria, on cervical ribs and newer clinical concepts of blood, respectively.——The Morgan County Medical Society was addressed, September 10, by Drs. James G. Carr, Chicago, on "Rheumatic Heart Disease," and Sumner L. S. Koch, Chicago, on "Infected Wounds with Special Reference to Infected Hands."——Dr. Richard H. Jaffe, Chicago, spoke on "Pathology of Pulmonary Tuberculosis" before the Will-Grundy County Medical Society, September 30.

Chicago

Course in Ophthalmology Postponed. — The Chicago Graduate Course in Ophthalmology, noted in The Journal, July 4, page 36, will be postponed for one year. Present plans call for the beginning of the course in September, 1932. Applications will be received by the secretary, Dr. Richard C. Gamble, 30 North Michigan Avenue, up to July 15, 1932.

Dr. Evans to Give the Bacon Lectures.—Dr. Herbert M. Evans, professor of anatomy, University of California, Berkeley, will deliver the third series of the Charles Sumner Bacon Lectures, October 8-9, at the University of Illinois College of Medicine. The general subject of the lectures is "The Function of the Anterior Hypophysis." Dr. Evans will speak, Thursday, on "Hormones of the Anterior Hypophysis," and, Friday, on "Relation of the Hypophysis to the Reproductive System."

Academy of Criminology.—The October 8 meeting of the Chicago Academy of Criminology will be devoted to a discussion of prison systems in the United States and Europe. The speakers will be Edwin H. Sutherland, Ph.D., professor of sociology, University of Chicago, "Historical Development of the Prison System in the United States"; Harry M. Fisher, chief justice, Criminal Court of Cook County, "Modern European Prison Systems," and Rodney H. Brandon, director, state department of public welfare, "Modern Prison Program of Illinois." The Chicago Academy of Criminology was organized this year to consider every phase of criminology and allied behavior problems. The principal activity of the academy will be the reading and discussion of scientific papers in monthly meetings. Dr. Sutherland is president of the organization; the vice presidents are Dr. Ludvig Hektoen, director, John McCormick Institute for Infectious Diseases; Dr. Paul L. Schroeder, state criminologist of Illinois and director, Institute for Juvenile Research; Arthur J. Todd, Ph.D., professor of sociology, Northwestern University, and the secretary is Dr. Meyer Solomon, associate in neurology, Northwestern University Medical School.

INDIANA

Open Clinic as Memorial to Psychologist.—A psychologic clinic for the study and treatment of children and adults was to have been opened in Indianapolis, September 1, as a memorial to Herman H. Young, Ph.D., who, before he died, was professor of clinical psychology at Indiana University School of Medicine, and head of the psychologic clinics of the hospitals at the university. The establishment of the Herman H. Young Foundation for research in clinical psychology has been made possible through the generosity of Indianapolis citizens. Dr. Young's widow, Mrs. Mary H. Young, will be director of the institute. The institution will operate on a five and one-half day schedule of examination, reeducation and rehabilitation, for which no charge will be made. Among those who have been appointed as members of an advisory committee are Reuel Clyde White, Ph.D., professor of sociology and director of the bureau of social research, Indiana University, and Drs. Matthew Winters, George J. Garceau and Max A. Bahr. It was stated that social, medical and educational agencies of the city as well as individuals will cooperate in bringing patients to the clinic.

IOWA

Personal.—Dr. Roy G. Barrick, assistant professor of psychiatry at the State University of Iowa College of Medicine, Iowa City, recently accepted an appointment at the Institute for Juvenile Research, Chicago. He will be in charge of mental health work at the Illinois State Penitentiary, psychiatrist at the Joliet Child Guidance Clinic, and assistant professor of criminology at the University of Illinois College of Medicine.

Society News. — The Polk County Medical Society was addressed, September 29, at the Smouse School for Handicapped Children, Des Moines, among others, by Drs. James A. Downing on "Instruction of Deaf Children from the Otologist's Point of View," and Harold J. McCoy, "Conservation of Vision from the Oculist's Point of View."——Dr. Isaac A. Abt, Chicago, will address the Linn County Medical Society at Cedar Rapids, October 8, on "Recent Progress in Poliomyelitis."

KANSAS

Dr. Stafford Appointed Health Commissioner of Virgin Islands.—Dr. Rolla B. Stafford, Hiawatha, sailed from New York, September 16, to assume the position of health commissioner of the Virgin Islands, to which he was recently appointed. Dr. Stafford, a graduate of University Medical College of Kansas City (Mo.), has been health officer of Brown County since 1928. He will have general supervision over all the medical facilities of the islands, including, in addition to several hospitals, dispensaries, clinics for venereal disease and nervous and mental disease, a laboratory service, a leper colony and a poor farm.

KENTUCKY

Society News.—Dr. Ulysses H. Smith and Elmer C. Hume, D.D.S., Louisville, addressed the Harlan County Medical Society, Harlan, August 29, on blood transfusions and lesions of the oral cavity, respectively.——Dr. Ernest B. Bradley, Lexington, addressed the September meeting of the Franklin County Medical Society, Frankfort, on serology.——Pellagra was the general subject of discussion before the Kentucky Valley Public Health Association, Pineville, September 25. Among others, Surg. George A. Wheeler, U. S. Public Health Service, read a paper on "Modern Conception of Pellagra—Its Prevention and Treatment."——Dr. Nelson A. Jett, Covington, addressed the Kenton and Campbell County Medical Society, Dayton, September 17, on "Pathologic Changes During Anesthesia."

MAINE

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CONTRIBUTIONS FOR MEMORIAL SALON IN PERSHING HALL

The sum contributed this week to the Pershing Hall Memorial in Paris brings the total to $2,498.10. The list of those who have contributed during the current week follows:

Roy G. Giles, M.D., Temple, Texas
William L. Hanson, M.D., East St. Louis, Ill.

The following contributors' names are republished, since they were not published correctly in their first printing:

R. F. Peterson, M.D., Butte, Mont.
George H. Ewell, M.D., Madison, Wis.
Col. E. L. Ruffner, M.D., Fort Riley, Kansas
L. F. Bender, M.D., Frankford, Philadelphia, Pa.
J. R. Robison, M.D., Salt Lake City, Utah.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALASKA

Health Supervisor Appointed.—Dr. Frank Samuelson Fellows, passed assistant surgeon of the U. S. Public Health Service, has been appointed district medical director for Alaska, a newly created position. Dr. Fellows, a native of Wisconsin, was graduated from the University of Pennsylvania School of Medicine in 1925 and joined the public health service in 1926. He has served in marine hospitals in Chicago, Norfolk, Va., and New York. In 1928 he had charge of fumigating activities in Puget Sound, Victoria, B. C., Townsend, Wash., and Vancouver, and since May, 1929, has been supervisor of public health activities in the district of Portland, Ore., and along the Columbia River. Alaska has a population of 30,000 natives scattered over an area of 586,400 square miles. The government has in the territory six hospitals, ten physicians and thirty-four nurses.

ARKANSAS

Society News.—Drs. Davis W. Goldstein and John M. Taylor, Fort Smith, addressed the Franklin County Medical Society recently on "Acute Appendicitis" and "Treatment of Syphilis," respectively.——The Independence County Medical Society was addressed in Batesville, August 10, by Dr. Lorenzo T. Evans, Batesville, on leukemia with report of case, and Dr. Van D. McAdams, Cord, on insect bites.——The September meeting of the Lawrence County Medical Society was held in Imboden; the program consisted of papers by Drs. Thomas C. Guthrie, Smithville, on quinsy; Gustavus A. Warren, Black Rock, differentiation of malaria from typhoid, and Shields Abernathy, Memphis, Tenn., cancer.——Drs. Matthew Wilson Searight, Memphis, Tenn., addressed the Mississippi County Medical Society in Blytheville, September 9, on "Affections of the Cervix"; Joseph D. Cleveland, "Treatment of Burns," and Emmett R. Hall, "Congenital Syphilis."

Committee on Heart Disease.—The officers of the Arkansas Medical Society recently formed a committee on heart disease to act as a clearing house for information on all phases of heart disease in Arkansas. This committee hopes to acquaint physicians of the state with some of the recent advances in the diagnosis and treatment of the disease by the publication of articles in the state journal and by the presentation of papers and the sponsoring of a scientific exhibit at the annual meetings. It is planned to offer opportunity for graduate work. The committee is also seeking the cooperation of other state organizations. According to the *Journal of the Arkansas Medical Society,* the members of the committee on diseases of the heart are Drs. Arthur G. Sullivan, chairman, Hot Springs National Park; Augustus C. Shipp, Little Rock; Arless A. Blair, Fort Smith; Nicholas F. Weny, Little Rock, and Hendric A. Ross, Arkadelphia.

CALIFORNIA

Health Officers Appointed.—Dr. John H. Hutton has been appointed health officer of Calipatria. Dr. Henry S. Rogers will succeed Dr. George R. Hubbell as health officer of Petaluma. It is announced that Avalon, Los Angeles County, is now under the supervision of the Los Angeles County Health Department, and that Willow Glen, Santa Clara County, has come under the supervision of the Santa Clara County Health Department.

Society News.—The annual Conference of California Health Officers was held in conjunction with the meeting of the League of California Municipalities at Del Monte, September 21-24. The program was devoted to the discussion of vacation health, public health nursing and administrative methods.——An executive committee has been appointed by Governor Rolph to carry on the program adopted at the White House Conference on Child Health and Protection. It will be known as the California Committee on Child Health and Protection and will consist of Dr. Giles S. Porter, director, state department of public health; Mrs. Reba Crawford Spivalo, director, state department of social welfare, and Mr. Vierling Kersey, director, state department of education.——The Alameda County Medical Society was addressed, September 21, in Oakland by Drs. Rossner E. Graham on "Parkinson's Disease"; Warren B. Allen, "Encephalitis," and Lloyd E. Kindall and Albert M. Meads, "Traumatic Rupture of Genito-Urinary Tract."——Dr. Arthur L. Bloomfield, professor of medicine, Stanford University School of Medicine, San Francisco, gave the opening lecture of the University of Southern California, September 15, on "Some Current Problems in Medical Education."

COLORADO

State Medical Election.—Dr. Edward Delehanty, Denver, was installed as president of the Colorado State Medical Society at its recent annual meeting in Colorado Springs, and Dr. Frank B. Stephenson, Denver, was made president-elect. Other officers elected are Drs. Harry C. Goodson, Colorado Springs; Lanning E. Likes, Lamar; Clarence E. Sidwell, Longmont, and Lawrence L. Hick, Delta, vice presidents; Lorenz W. Frank, Denver, constitutional secretary; Leo W. Bortree, Colorado Springs, treasurer, and Mr. Harvey T. Sethman, executive secretary, reelected.

CONNECTICUT

Hospital News.—A new surgical unit of 125 beds will be added to the New Haven Hospital through a recent bequest of $1,000,000 by Mrs. Sarah Wey Tompkins, according to *Science.* The new building, to be known as the Sarah Wey Tompkins Memorial, will have five floors, with practically all the facilities required for a hospital except operating rooms, which are in the adjoining Farnam Memorial Building. The erection of this building will bring near to completion a plan adopted five years ago for the modernization of the New Haven Hospital.

ILLINOIS

Health Bulletins.—Four new educational bulletins on health, published by the state department of public health, are now available for free distribution in the state. The titles of the bulletins are Tularemia in Illinois, Infantile Paralysis, Animal Experimentation, and Diet, Health and Intelligence.

Society News.—Drs. Robert S. Berghoff and John E. Kelley, Chicago, addressed the Alexander County Medical Society, September 18, on "Syphilis of the Heart" and "Some Forgotten Points in the Technic of Operation for Inguinal Hernia," respectively.——The McDonough County Medical Society was addressed, September 15, by Drs. Clifford U. Collins and James W. Sours, Peoria, on cervical ribs and newer clinical concepts of blood, respectively.——The Morgan County Medical Society was addressed, September 10, by Drs. James G. Carr, Chicago, on "Rheumatic Heart Disease," and Sumner L. S. Koch, Chicago, on "Infected Wounds with Special Reference to Infected Hands."——Dr. Richard H. Jaffe, Chicago, spoke on "Pathology of Pulmonary Tuberculosis" before the Will-Grundy County Medical Society, September 30.

Chicago

Course in Ophthalmology Postponed.—The Chicago Graduate Course in Ophthalmology, noted in The Journal, July 4, page 36, will be postponed for one year. Present plans call for the beginning of the course in September, 1932. Applications will be received by the secretary, Dr. Richard C. Gamble, 30 North Michigan Avenue, up to July 15, 1932.

Dr. Evans to Give the Bacon Lectures.—Dr. Herbert M. Evans, professor of anatomy, University of California, Berkeley, will deliver the third series of the Charles Sumner Bacon Lectures, October 8-9, at the University of Illinois College of Medicine. The general subject of the lectures is "The Function of the Anterior Hypophysis." Dr. Evans will speak, Thursday, on "Hormones of the Anterior Hypophysis," and, Friday, on "Relation of the Hypophysis to the Reproductive System."

Academy of Criminology.—The October 8 meeting of the Chicago Academy of Criminology will be devoted to a discussion of prison systems in the United States and Europe. The speakers will be Edwin H. Sutherland, Ph.D., professor of sociology, University of Chicago, "Historical Development of the Prison System in the United States"; Harry M. Fisher, chief justice, Criminal Court of Cook County, "Modern European Prison Systems," and Rodney H. Brandon, director, state department of public welfare, "Modern Prison Program of Illinois." The Chicago Academy of Criminology was organized this year to consider every phase of criminology and allied behavior problems. The principal activity of the academy will be the reading and discussion of scientific papers in monthly meetings. Dr. Sutherland is president of the organization; the vice presidents are Dr. Ludvig Hektoen, director, John McCormick Institute for Infectious Diseases; Dr. Paul L. Schroeder, state criminologist of Illinois and director, Institute for Juvenile Research; Arthur J. Todd, Ph.D., professor of sociology, Northwestern University, and the secretary is Dr. Meyer Solomon, associate in neurology, Northwestern University Medical School.

INDIANA

Open Clinic as Memorial to Psychologist.—A psychologic clinic for the study and treatment of children and adults was to have been opened in Indianapolis, September 1, as a memorial to Herman H. Young, Ph.D., who, before he died, was professor of clinical psychology at Indiana University School of Medicine, and head of the psychologic clinics of the hospitals at the university. The establishment of the Herman H. Young Foundation for research in clinical psychology has been made possible through the generosity of Indianapolis citizens. Dr. Young's widow, Mrs. Mary H. Young, will be director of the institute. The institution will operate on a five and one-half day schedule of examination, reeducation and rehabilitation, for which no charge will be made. Among those who have been appointed as members of an advisory committee are Reuel Clyde White, Ph.D., professor of sociology and director of the bureau of social research, Indiana University, and Drs. Matthew Winters, George J. Garceau and Max A. Bahr. It was stated that social, medical and educational agencies of the city as well as individuals will cooperate in bringing patients to the clinic.

IOWA

Personal.—Dr. Roy G. Barrick, assistant professor of psychiatry at the State University of Iowa College of Medicine, Iowa City, recently accepted an appointment at the Institute for Juvenile Research, Chicago. He will be in charge of mental health work at the Illinois State Penitentiary, psychiatrist at the Joliet Child Guidance Clinic, and assistant professor of criminology at the University of Illinois College of Medicine.

Society News. — The Polk County Medical Society was addressed, September 29, at the Smouse School for Handicapped Children, Des Moines, among others, by Drs. James A. Downing on "Instruction of Deaf Children from the Otologist's Point of View," and Harold J. McCoy, "Conservation of Vision from the Oculist's Point of View."——Dr. Isaac A. Abt, Chicago, will address the Linn County Medical Society at Cedar Rapids, October 8, on "Recent Progress in Poliomyelitis."

KANSAS

Dr. Stafford Appointed Health Commissioner of Virgin Islands.—Dr. Rolla B. Stafford, Hiawatha, sailed from New York, September 16, to assume the position of health commissioner of the Virgin Islands, to which he was recently appointed. Dr. Stafford, a graduate of University Medical College of Kansas City (Mo.), has been health officer of Brown County since 1928. He will have general supervision over all the medical facilities of the islands, including, in addition to several hospitals, dispensaries, clinics for venereal disease and nervous and mental disease, a laboratory service, a leper colony and a poor farm.

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NEBRASKA

Society News.—Drs. Palmer Findley and Max Emmert, Omaha, addressed the Madison Five Counties Medical Society, Norfolk, recently, on the teaching of obstetrics and on gallbladder diseases, respectively.——Drs. Alfred Schalek, Omaha, and John D. Lutton, Laurel, discussed syphilis from the standpoints of the skin specialist and the general practitioner, respectively, before the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society, Winnebago, August 7.——The Omaha-Douglas County Medical Society will hold two sessions jointly with the American Congress of Physical Therapy, October 6-7. Dr. Gustav Kolischer, Chicago, will speak, October 6, on "The Place of Diathermy in the Cancer Problem" and Drs. Grandison D. Royston, Frank H. Ewerhardt and Melvin A. Roblee, St. Louis, on "Application of Heat Therapy in Pelvic Infections." Dr. Robert A. Cooke, New York, will speak, October 7, on allergy.

NEW HAMPSHIRE

Grafton County Meeting with Dartmouth Medical School.—The Grafton County Medical Society will hold an all-day meeting in cooperation with Dartmouth Medical School, Hanover, October 9. Guest speakers will be Drs. Edward Starr Judd, Rochester, Minn., President, American Medical Association, on "Treatment of Biliary Disease"; Earl D. Osborne, Buffalo, "Syphilis in General Medicine"; Channing Frothingham, Boston, "Treatment of Edema"; Halsey B. Loder, Boston, "Early Treatment of the Severely Injured"; Clarence H. Beecher, Burlington, Vt., "Clinical Use of Purgatives." The following members of the staff at Dartmouth will also give addresses: Drs. Ralph E. Miller, on "Pathological Physiology of Edema"; Harry T. J. French, "Clinical Considerations of Edema"; Clarence J. Campbell, "Pharmacology of Purgatives" and John F. Gile, "Diseases of the Gallbladder." Dr. George C. Wilkins, Manchester, president, New Hampshire Medical Society, will make the opening address.

NEW YORK

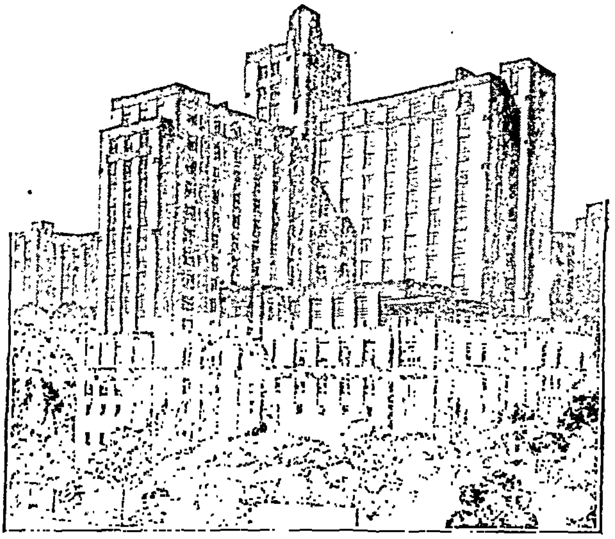
Progress in Venereal Disease Control.—There are now about sixty organized clinics in upstate New York established for the treatment of indigent venereal disease patients. In many rural counties, however, it has been found more practical to pay practicing physicians a nominal fee for the treatment of indigents. This work is included in a program of venereal disease control which is the result of an agreement entered into in January by the Medical Society of the State of New York and the state health department with a view to formulating an arrangement with the medical profession for the control in the first place of syphilis and later of gonococcal infections. Through information obtained in two surveys of the state that have been made by the division of social hygiene at three year intervals, it was ascertained that patients with syphilis are most frequently diagnosed late in the course of the disease and do not receive enough treatment for a cure or to prevent possible relapses to an infectious condition. Dr. James N. Vander Veer, formerly president of the state medical society, was appointed as liaison officer with Dr. Albert Pfeiffer, director of the division of social hygiene. These physicians have addressed seventeen county medical societies during the year, presenting the subject from the point of view of the medical profession and the state health department. Recent legislation passed in the state requires local health departments to provide for the treatment of patients unable to pay private practitioners, irrespective of the stage of the disease. To secure earlier diagnosis of nonhealing and suspicious lesions, an outfit containing three capillary tubes and a small vial of resinous wax has been prepared to obtain serous fluid from the lesions, and is available in all district supply stations throughout the state. This service has been well received by physicians, it was stated, not only in rural districts but in cities, as it allows physicians to make examinations in their own offices. A free consultation service is offered to physicians by mail or personal visit for diagnosis and to outline treatment.

New York City

Hospital News.—Dr. Edward W. Archibald, professor of surgery, McGill University Faculty of Medicine, Montreal, gave a lecture on surgical treatment of pulmonary tuberculosis at the Post-Graduate Hospital, September 15.

Lectures on Mental Hygiene.—A course of fifteen lectures on mental hygiene will be given at the Medical Center in Forest Hills, beginning October 21, under the auspices of the Medical Society of the County of Queens, the Queensboro Council of Social Agencies, the New York City Committee on Mental Hygiene and the mental hygiene section of the Welfare Council. The lectures will deal with behavior problems of children, problems of adolescence and delinquency and the mental hygiene of adult adjustment. Among the speakers will be Drs. George K. Pratt, Lawson G. Lowrey, Bernard Glueck, all of New York, and Bruce B. Robinson, Newark, N. J.

Dormitory for Columbia Medical Students.—Bard Hall, a $2,500,000 men's residence hall given to the Medical Center of Columbia University by Edward S. Harkness, was to receive its first students, October 1. The building was named in honor of Dr. Samuel Bard, for forty years connected with King's College, later Columbia, as its first professor of medicine, trustee and dean of the medical faculty. The dormitory is on Haven Avenue just above Riverside Drive, near One Hundred and Sixty-Eighth Street. It rises eleven stories on the Haven Avenue side, with three additional stories below that level on the west side sloping toward the Hudson River. It contains 235 rooms for students and ten suites for instructors. The two lower floors on the west side contain a gymnasium, swimming pool, squash courts and locker rooms, while the dining rooms are in the story just below the entrance floor, which opens on Haven Avenue. Living quarters occupy the third to the tenth floors inclusive. The illustration shows the building as seen from Riverside Drive.



OREGON

Society News.—Dr. Walter Clark, New York, spoke on "Medical Measures in Social Hygiene" before a recent meeting of the Portland City and County Medical Society and the Oregon Social Hygiene Society in Portland.——At the annual meeting of the Eastern Oregon Medical Society, Wallowa Lake, August 1, addresses were made by the following physicians, among others: Drs. Richard B. Dillehunt, Portland, "Elbow Fractures in Children"; Robert C. Coffey, Portland, "Diagnosis and Treatment of Painful Abdominal Conditions Other Than Organic Disease"; James Tate Mason, Seattle, "Problems of Cholecystitis," and John Earl Else, Portland, "Treatment of Tic Douloureux with the Injection of Alcohol."——Medical societies were organized during the past summer in Yamhill, Washington and Columbia counties.

PENNSYLVANIA

Dedication of the Falk Clinic.—The Falk Clinic of the University of Pittsburgh was dedicated, September 28. Addresses were given by Drs. Raleigh R. Huggins, dean of the University of Pittsburgh School of Medicine, and Joseph H. Barach, director of the clinic. In the evening a dinner was given by the school of medicine to the board of directors of the Allegheny County Medical Society, with Drs. Willard J. Stone, Pasadena, Calif., and Alfred Stengel, Philadelphia, as guests of honor. At a meeting of the society and other organizations later in the evening, Dr. Huggins spoke on "The Medical Center and Its Aims"; Dr. Stone, "Certain Economic Phases of Medical Practice"; Dr. Stengel, "The Clinic and Medical Development," and Dr. Barach, "Aims of the Falk Clinic." The Falk Clinic is one of the group of buildings to be known as the Pittsburgh Medical Center. It was erected at a cost of about $1,000,000, contributed by Messrs. Leon and Maurice Falk, and provides modern equipment for the diagnosis and treatment of ambulatory patients and for teaching. On the first floor are the children's department, the dental and pharmacy departments, and the board and staff rooms; on the second floor are the departments for the treatment of diseases of the nervous system, heart and kidneys, the diet kitchen, a special roentgen department, and demonstration and lecture space; the third floor contains the department for the treatment of crippled children, the women's department, and the general surgical division, where minor operations will be performed. A large public lecture hall is provided on the fourth floor.

Philadelphia

Personal.—Dr. Edward A. Strecker, formerly professor of nervous and mental diseases at Jefferson Medical College, has been appointed professor of psychiatry at the University of Pennsylvania School of Medicine.——Dr. Joseph B. Wolffe, associate professor of cardiovascular diseases, Temple University School of Medicine, was the guest of honor at a testimonial dinner, September 1, given by members of the staff of his clinic.

Faculty Changes at Jefferson.—Additions to the faculty of Jefferson Medical College include George Russell Bancroft, Ph.D., as professor of physiologic chemistry and toxicology; Lorenz P. Hansen, Ph.D., assistant professor of physiologic chemistry, and Major Francis E. Weatherby, professor of military science and tactics. The following recent promotions were also announced at the beginning of the 1931 session:

Dr. George A. Ulrich, clinical professor of obstetrics.
Dr. Michael A. Burns, associate professor of nervous and mental diseases.
Dr. Arthur J. Davidson, associate professor of orthopedic surgery.
Dr. Harry Hunter Lott, assistant professor of laryngology.
Dr. Alexander Spencer Kaufman, assistant professor of otology.
Dr. Benjamin P. Weiss, assistant professor of nervous and mental diseases.
Dr. James R. Martin, assistant professor of orthopedic surgery.
Dr. B. B. Vincent Lyon, assistant professor of medicine.
Dr. Collin Foulkrod, assistant professor of obstetrics.

TENNESSEE

Professor of Biochemistry Appointed.—Charles S. Robinson, Ph.D., director of the chemical division of the Michigan Experimental Station, East Lansing, has been appointed professor of biochemistry at the Vanderbilt University School of Medicine, Nashville. He succeeds Glenn E. Cullen, Ph.D., who resigned, September 1, to become director of laboratories at the Institute of Pediatric Research of the University of Cincinnati Medical School. Professor Robinson is a graduate of the University of Michigan and has held various teaching and research positions at his alma mater. During the World War he was assigned to the Rockefeller Institute to take charge of the training of chemists for base hospital laboratories.

Society News.—Dr. Tinsley Harrison addressed the Nashville Academy of Medicine, September 22, on "Indications and Contraindications for Digitalis."——At a joint meeting of the Anderson and Campbell county medical societies, August 27, in Jellico, Dr. Joe M. Cox, Coal Creek, spoke on "The Value of a Physician's Reputation," and Dr. Horace T. Fortner, Jellico, "Complications of Pregnancy and Their Treatment."——The Bedford County Medical Society was addressed at its August meeting by Dr. Vernon K. Earthman, Shelbyville, on conjunctivitis.——Dr. Richard M. Little, Martin, among others, spoke on "Cardiac Arrhythmias" before the Tri-County Medical Society (Benton, Carroll, Henry, Weakley counties), August 11, at McKenzie.——Among others, Dr. Ernest H. Baird, Dyersburg, addressed the Dyer, Lake and Crockett County Medical Society, September 2, on "Abscess of the Liver."

TEXAS

Faculty Changes at University of Texas.—New appointments at the University of Texas School of Medicine include: Dr. Ellen D. Furey, adjunct professor of pathology, succeeding Dr. Harry L. Klotz; John F. Pilcher, instructor in pathology; Wilbur A. Senglemann, Ph.G., instructor in anatomy, and Dr. William W. Bondurant, Jr., instructor of clinical medicine. The appointment of Dr. George R. Herrmann, formerly of New Orleans, as associate professor of medicine was announced in The Journal, July 25, p. 254.

GENERAL

International Hospital Association.—At the second International Hospital Congress, which was held in Vienna in June, the International Hospital Association was organized. Two classes of members are admitted, one including persons connected in various ways with hospitals and another including representatives of firms or organizations standing in business relationship to hospitals. Ten permanent committees were established to work out standards for the guidance of the hospital field throughout the world. Dr. René Sand, Paris, is president and E. H. Lewinski-Corwin, Ph.D., New York, is secretary general of the association.

Four Weeks of Automobile Fatalities.—The U. S. Department of Commerce announces that, during the four weeks ended September 5, eighty-two large cities in the United States reported 656 deaths from automobile accidents, as compared with 674 deaths during the four weeks ended Sept. 6, 1930. Most of these deaths were the result of accidents which occurred within the corporate limits of the city, although some accidents occurred outside the city limits. For the fifty-two week periods ended Sept. 5, 1931, and Sept. 6, 1930, the totals for the eighty-two cities were, respectively, 9,098 and 8,841, which indicate a recent rate of 25.6 per hundred thousand of population as against an earlier rate of 25.3.

Society News.—Dr. Burt R. Shurly, Detroit, was chosen president-elect of the American Academy of Ophthalmology and Otolaryngology at its recent meeting at French Lick, Ind. Dr. Samuel Hanford McKee, Montreal, became president and Dr. Gordon B. New, Rochester, Minn., was elected vice president.——Dr. Max C. Starkloff, St. Louis, was elected president of the International Society of Medical Health Officers, September 16, in Montreal, and Dr. Francis E. Harrington, Minneapolis, secretary-treasurer.——Dr. Walter T. Dannreuther, New York, was elected president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at its recent annual meeting in White Sulphur Springs, W. Va.; Drs. Andre Crotti, Columbus, Ohio, and Herbert M. Little, Montreal, were elected vice presidents, and Dr. Magnus A. Tate, Cincinnati, was reelected secretary. The next annual meeting will be held at French Lick Springs, Ind., Sept. 12-14, 1932.——At the annual meeting of the American Psychopathological Association, Dr. James Ramsay Hunt, New York, was elected president, and L. Eugene Emerson, Boston, secretary.——A group of research workers in medicine and biology, meeting in New Haven, Conn., organized the Biological Photographic Association, September 12, for the purpose of advancing the use of photographs and motion pictures in the biologic sciences. Ralph P. Creer, photographer, division of photography, Yale University School of Medicine, is the first president.

Health During the Business Depression.—Mortality statistics for the first five months of 1931 indicate that the death rate was somewhat lower than the rate for the corresponding period of 1928, a period of full employment, according to a report sent by Surgeon General Hugh S. Cumming of the U. S. Public Health Service to President Hoover in response to a request for information concerning health conditions during the financial depression. A compilation of reports from thirteen states with a total population of 43 million shows a rate of 12 per thousand as compared with 13.7 for the corresponding period of 1928. Records collected by the division of vital statistics of the bureau of the census, from industrial insurance companies having an aggregate of more than 70 million policyholders, show a death rate among these policyholders of 10.5 per thousand for the first six months of 1931, compared with 10.6 in 1928. Sickness rates among a group of wage earning members of sick benefit associations which report regularly to the public health service were also quoted by Dr. Cumming as indicative of improvement in health conditions, 104.2 in 1931 as compared with 117.9 in 1928. Diphtheria incidence as reported by state health officers was 26,000 cases for the first six months of this year as compared with 46,000 for the same period in 1928; smallpox, 24,000 in 1931 and 29,000 in 1928, and typhoid, 4,500 in 1931 and 5,900 in 1928. Reports of pellagra from seven states in which this disease is prevalent showed 14,333 cases for the present year, compared with 11,592 in 1928.

CORRECTION

Chronic Myelogenous Leukemia.—In the paper by Drs. Hoffman and Craver (The Journal, September 19, in the third line of the second column on page 838) in the technic of the roentgen treatment, the distance is given as 15 centimeters; it should have been 15 inches, or 37.5 centimeters, the factors employed being: voltage, from 135 to 140 kilovolts; distance, 37.5 cm.; filtration, 5 mm. of aluminum; current, 5 milliamperes.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 5, 1931.

Campaign Against the Tsetse Fly

The tsetse fly, of which one species (Glossina palpalis) conveys trypanosomiasis to man and another (Glossina morsitans) nagana to cattle and horses, furnishes a serious problem in hygiene in parts of Africa. In Uganda the natives cannot keep stock where Glossina morsitans exists and therefore a vigorous campaign is being carried on against it. Attempts are being made to open to stock the unlimited water supply of the river Kagera and the lakes and encourage the natives to return to these places, which are now useless. In recent times the country carried a large stock of cattle; now hardly a beast is to be seen It has become evident that there is some unknown factor which attracts flies to certain areas, and a study of the vegetation is being made to discover this. Favorable conditions are water and shade. By burning down of the bush in certain areas, thus destroying the home of the flies, it is hoped to free much larger adjacent areas. Trained native boys are always out catching the flies and digging up the pupae. The fly has special breeding places, usually in soft dry earth under logs, bushes and sides of anthills. The larvae, which measure about one-fourth inch, burrow into the ground for a few inches and there pupate after four or five hours. The period of pupation is about a month. The female fly is generally regarded as the more rapacious and attacks animals fiercely. Some authorities say that she requires the blood of one of the large mammals before reproduction can take place. The life of the adult fly is from two to four months. Pedestrians, cyclists and motorists all attract the fly and disseminate it. In an endeavor to prevent this, a system of smoke houses has been devised by Mr. W. F. Poulton, director of veterinary services, Uganda. Every car passing from a fly area to a free area passes through a smoke house for fumigation. As many as 200 flies have been seen on and in a car entering a smoke house. When the car emerges they have all gone.

The Lack of Officers for the Army Medical Corps

In spite of the great reduction of the army which has been going on since the war, the officers of the medical corps are 200 short of the authorized establishment. This is partly counteracted by reemploying officers of the reserve, granting temporary commissions and employing civilian physicians, but, these cannot be sent abroad. The result is that the regular officers are compelled to serve long periods abroad without the compensating advantage of sufficient time on home service. This adds to the unpopularity of the service. In a joint letter to the *Times,* Sir Alfred Keogh, late director general of the army medical corps, and other retired high officers point out that it is not difficult to fill the purely medical and surgical posts from the civil medical profession, but administrative posts, the command of medical units, and the many other appointments of a similar nature require prolonged training if they are to be filled adequately in peace or in war. This training involves an intimate knowledge of the medical service and the medical and sanitary requirements of the army as a whole, as well as a thorough knowledge of the characteristics of each branch. There are many instances in the past of a similar shortage arising from similar causes, but never has the position been more serious than at present. The cause is, as it has always been, that newly qualified physicians are not attracted to the service, as the pay and pensions have fallen behind the times in actual value and compare unfavorably with other public appointments and the emoluments and amenities of private practice available to men of the type and ability suitable for the corps. Such young men, whose medical education has cost from $7,500 to $10,000, will consider entering the corps only provided the initial pay is as good as that of other public appointments open to them and if the larger emoluments of civil practice are compensated for by the certainty of a pension absolutely and relatively commensurate with what they renounce by embarking on an army career. Therefore the only remedy is an immediate increase of pay and pension, and improvements in the status of all ranks of officers of the corps.

The Government and Birth Control

A memorandum on contraceptive methods addressed to maternity and child welfare centers by the minister of health has been summarized in a previous letter (The Journal, May 16, p. 1710). Finding that misconception has arisen in regard to the views therein expressed, the minister has defined the government position in another memorandum. He emphasizes the point that local authorities have no general power to establish birth control clinics as such. Their powers, so far as women are concerned, are limited to making arrangements for attending to the health of expectant and nursing mothers. If an authority decides to provide facilities for giving birth control advice at a maternity and child welfare center, their use must be strictly incidental to the purpose for which the clinic was established—the treatment of sick persons. Only women who need medical advice and treatment for gynecologic conditions can properly be admitted to the clinic, and contraceptive advice can properly be given only to married women in attendance at the clinic in whom pregnancy would be detrimental to health. It is obviously desirable for a local authority to obtain the services of an officer especially experienced in the clinical advice and treatment needed at a gynecologic center of this sort. The minister does not consider it desirable that a gynecologic clinic should be established at a maternity and child welfare center, if an authority is satisfied that there is need for such a clinic, it should be provided in separate premises or at a hospital. Expectant and nursing mothers in attendance at such centers who are found to be in need of medical advice and treatment for gynecologic conditions could then be referred to the clinic. ' The minister considers that no officer of a local authority should be prejudiced in any way by a decision of the authority to provide facilities for birth control advice within the limits laid down by the memorandum. This work should not be regarded as falling within the scope of the normal duties of the medical officers, who should be free to undertake it or decline it.

Improvement in the Health of London School Children

The health officer for London, Dr. F. N. Kay Menzies, states in his annual report on the school medical service that the health and physique of the London school child are infinitely better than those of his parents; almost every year some improvement is shown in the figures relating to personal hygiene and the nutritional index. The number of children medically inspected last year was 304,620. In addition, 186,615 children under observation for previously recorded defect were inspected. Thus the children inspected formed a high percentage of those on the school rolls. Every child in attendance was also inspected three times annually by the school nurse. The interest shown by parents in the medical inspection of their children was gratifying. Because it has reached the whole population, there is probably no other influence which can be compared with it in its educational effect on the people, from the point of view of health, with the intimate talk with the school physician, the child being present as an object more absorbingly interesting to the mother than any other could possibly be. Refusal of parents to submit children for medical inspection was so rare as to be almost negligible. The most striking figures exemplifying the effect of the school medical service generally are those relating to personal cleanliness. The improvement in this respect is an index of all-round general improvement in personal hygiene and care. The heaviest burden of the school medical service is due to the poor condition of the children's teeth. "It is probably not going too far to say that dental unsoundness is the most serious of all the conditions that not only menace but actually lower the state of the national health." The condition of the teeth of the infant entrants continues to give cause for great concern. In 1930, of the entrant infant boys, 47 per cent showed obvious dental decay, and of the entrant infant girls, 47.8 per cent. It is barely possible now for a child to be found in school at a routine inspection suffering from tuberculosis. During the year only sixty-two children were notified with pulmonary tuberculosis and forty-seven with tuberculosis in other parts. These numbers are lower than those of the previous year, which already was far below 1 in 1,000. In 1930 it may be claimed that the physical state and comfort of the children of London are better than ever before as judged on the broad primary conditions of nutrition and personal hygiene. Although minor conditions of departure from health are rife, the major conditions of disease are becoming rarer and rarer. The stringency of the times is not allowed even to a slight degree to affect the children prejudicially, but, on the contrary, their health steadily improves.

Martin Flack, a Pioneer in Aeronautical Medical Research

Group Captain Martin Flack, director of the department of research of the air ministry, who attained fame in the "Keith-Flack node," has died in his fiftieth year from septicemia. He graduated in arts at Oxford in 1905 and then studied medicine at the London Hospital. His abilities were recognized by Sir Leonard Hill, then lecturer on physiology, who appointed him demonstrator and whom he assisted in research on the respiration and circulation, and by Sir Arthur Keith, then lecturer on anatomy. When in 1905 Keith was investigating the arrangement of the musculature round the venous orifice of the auricular chamber, he was joined by Flack. In the following year Tawara published the discovery of his node in the mammalian heart, and Keith and Flack verified this and set out to trace the evolution of the connecting system between auricles and ventricles from the simpler arrangement in the lower vertebrates and to ascertain whether in the region where the heart beat began there existed tissue in the nature of Tawara's node at the beginning of the auriculoventricular bundle. They found in all mammalian hearts a collection of peculiar muscular tissue, which they named the sino-auricular node and which they inferred originated the heart beat. In 1910 Flack worked in Professor Kronecker's laboratory in Berne and performed experiments supporting this view, which was later confirmed by Lewis. He wrote the article on the heart for Hill's "Further Advances in Physiology" and, with this physiologist, "A Textbook of Physiology." In conjunction with Sir Leonard Hill he showed, among other things, that filling the lungs with oxygen enabled an athlete to run with astonishing ease and pace, with no after-feeling of stiffness or fatigue. He was appointed director of medical research of the air ministry, where he made pioneer investigations on the causes of breakdown, in body and mind, of experienced fliers and on how to detect candidates for the air force who were constitutionally unfit. He devised a series of tests which are now employed and wrote several important articles on medical problems of aviation, a subject on which he is a recognized authority all over the world.

Casualties of the War

In the last volume of the "Official History of the War," which has recently been published, more than 11 million casualties are recorded. Exclusive of dominion and other overseas forces, 2,414,000 persons, or 40 per cent of those who served, suffered to the extent of death or disablement for which compensation was given. The expansion of the medical corps was without parallel. Before the outbreak it numbered only 1,279 officers and 3,811 of other ranks. In August, 1918, it numbered 10,178 officers and 100,176 of other ranks, exclusive of territorial forces. The number of hospital beds equipped and maintained was 637,746. Of the sick and wounded admitted to medical units, 3.04 per cent died, 58.10 returned to duty, and 37.41 were evacuated overseas. In France, during 1917 and 1918, 1,140,398 wounded were admitted to casualty clearing stations. Of these, 30 per cent required immediate operation. Fifty-five per cent of the total deaths occurred in the casualty clearing stations, showing that high medical and surgical skill should be available in them. There were two casualties due to disease to every one due to wounds inflicted by the enemy.

The Rebuilding for Lewis

Messrs. H. K. Lewis & Co., medical publishers and booksellers, have rebuilt their premises. The building provides free reading rooms and a reference library for use by medical students and practitioners, also a lending library for students. The event was marked by a reception. Sir Gregory Foster, formerly vice chancellor of the University of London and provost of University College, Gower Street, for twenty-five years (he retired in December, 1929) presided over an informal meeting and gave an interesting account of the origin of the scheme and the negotiations with University College which had resulted in the present building. His recollections went back to 1881. He congratulated University College on having such an institution at its doors. Dr. H. R. Kenwood, formerly Chadwick professor of hygiene in the University of London, gave an interesting address on textbooks and education. The president of the company, Mr. H. L. Jackson, returned thanks to those present on such a memorable occasion. Mr. Percy Fleming, F.R.C.S., late ophthalmic surgeon to University College Hospital, spoke from the audience and said that as a boy at University College School he first bought books at Lewis's in 1873, and as a student made constant use of the company's invaluable medical circulating library.

PARIS

(From Our Regular Correspondent)

Aug. 19, 1931.

Medical Aid in the French Colonies

In connection with the colonial exposition being held at Paris, Dr. Lasnet, inspector general of the public health service for the colonies, published a report on the hygienic work carried on by France in the colonies. One may distinguish in the development of medical aid for the colonies three periods corresponding to (1) the military occupation, (2) the administrative organization, and (3) the economic organization. During the military occupation, the physicians attached to the expeditionary forces render aid to the soldiers, and at the same time they treat the natives. Gradually, in the vicinity of the posts that they serve, the reputation of the physicians becomes established. Sometimes the native chiefs, dissatisfied with their medicine men, appeal to the white physicians, and the cures thus effected often accomplish much more by way of pacification than successes at arms. Thus, Colonel Lyautey, who was sent in 1898 to suppress an insurrection in Madagascar, wrote to General Gallieni as follows: "Send me some physicians and I will return to you several companies of troops." In a similar manner, the colonial physician Liotard made a peaceful conquest, thirty-five years ago, without a single soldier, of the people of the Ubangi-Shari region in Africa, of which he became, a few years later, the governor. French colonial physicians have acquired, in nearly all the colonies, a prestige that has assured to France the attachment and gratitude of entire peoples. During the period of administrative organization, medical aid was extended gradually to the areas that had been pacified. The consultation rooms of the army posts soon outgrew their usefulness, and it became necessary to create hospital services in the larger centers of population. For the rural population, centers served by mobile medical personnel was the most feasible plan, although in the more grave cases the rural physicians visited the patients in their homes. In Morocco, Marshal Lyautey made use of such sanitary crews traveling on horseback, camels or donkeys, and they facilitated enormously his work of opening up the country. Their work is usually rapidly successful, since patients abound. To relieve the hospitals, dispensaries were created in large numbers. Soon the physicians were overwhelmed with patients, and to aid them the more competent of the native men nurses were employed. Finally, medical schools were created to train native practitioners to treat the more common diseases and to apply measures of preventive medicine and hygiene. France has three large medical schools in its colonies: the school at Tananarivo (the capital of Madagascar), founded by General Gallieni in 1897; the school at Hanoi (the capital of French Indo-China), created by Governor General Doumer in 1900, and the school at Dakar (the capital of French West Africa), created by Governor General Merlin in 1921. A much smaller school at Pondicherry (capital of French Establishments in India) is the oldest, having been founded in 1827 by physicians of the navy. During the period of economic organization, it is necessary to lay out roads, build bridges and railway systems, and organize cities, towns and villages. The next thing is to increase production. A high percentage of the population is undernourished, and the contemplative life that the people have always led has not prepared them for the hard work that is now necessary. The result is a high mortality from malaria, recurrent fever, trypanosomiasis, leprosy and other disease. From 40 to 75 per cent of the new-born die during the first eighteen months, mostly through the ignorance of the mothers. The essential creations for the promotion of medical aid become thus the dispensary and the maternity. The present trend consists, therefore, in limiting the number of hospitals, which cost large sums and which immobilize the medical personnel, and in increasing the number of dispensaries and facilitating the mobility of the physicians. The medical institutions in the French colonies include at present 126 hospitals, 44 ambulances, 265 dispensaries, 468 maternities, 628 infirmaries, 5 psychopathic hospitals, 96 leprosariums and 34 "hypnosariums." The European medical personnel supports and aids in every possible way the native personnel, which constitutes the majority of the practitioners. The European personnel directs, guides and coordinates the efforts of the native physicians. European physicians in the French colonies at present number 780. The colonial administration is endeavoring to increase this number to 1,500. The native sanitary personnel comprises 678 native physicians, 42 pharmacists, 837 midwives, 4,910 attending male nurses, and 495 so-called hygienic male nurses. The annual appropriations for the colonial public health services have steadily increased from $2,000,000 in 1920 to $8,480,000 in 1930.

Deaths

Dr. Lortat-Jacob, chief physician of the Hôpital St. Louis, in Paris, and an eminent dermatologist, has died at the age of 58. He first became known on the appearance of his thesis on iodine and the means of defense of the organism; but he had published also some excellent articles on sciatica and on medullary syphilis. His reputation, however, was based chiefly on studies on the action of freezing on the tissues. He was the first to introduce cryotherapy in France, applying it to the treatment of warts and moles. He invented for this purpose an apparatus for the extemporaneous production of small ampules of carbon dioxide snow, for immediate use.

Dr. Jacquemaire-Clémenceau, the grandson of Clémenceau, has succumbed, at the age of 36, to a streptococcal septicemia, which resulted from a finger prick inflicted two months previously while he was operating on a patient in a hospital school of a Red Cross society in Paris. The decedent enlisted as a private during the World War, being at that time a medical student, and was severely wounded almost in sight of his illustrious grandfather. His scientific articles based on laboratory studies and clinical applications with reference to cultures of d'Herelle's bacteriophage gave promise of a scholar of note. The minister of public health brought him the cross of the Legion of Honor as he lay on his death bed, the victim of professional duty.

JAPAN

(From Our Regular Correspondent)

Aug. 15, 1931.

Physical Development of Japanese Children Born in America

Six years ago, Dr. Yoshida published the results of the physical examination made of about 2,300 children who had been born and brought up in Hawaii by Japanese parents. The average height of the children aged from 6 to 16 years was more by 3.6 per cent in boys and by 5.5 per cent in girls than that of the children of the same age in Japan, and their average weight was more by 12.7 per cent in boys and by 9.9 per cent in girls. Dr. F. Ishiwara, however, thought that this might have been due to the superiority of the climate and food in Hawaii, and so while in America lately he studied with the aid of colleagues there the Japanese people from 19 to 27 years of age born in America and brought up by their own parents. The examination of those in school was done easily, but there were difficulties in making examinations of the young people who worked, as they had to be seen at their homes. Finally, 276 young men, 55 young women, and their 198 parents who were Japanese in nationality—308 in Los Angeles, 180 in Hawaii and 41 in Seattle, were examined. The average height of the 276 young men was 166.3 cm.; those of Los Angeles were the tallest (169.5 cm.), and those of Hawaii measured 164.9 cm. In comparison with the average height, 160.4 cm. of 3,700 men of conscript age in the Yamanote ward of Tokyo, the average height of the 276 is about 6 cm. greater and that of the Japanese in Los Angeles about 9 cm. The average height of the 55 young women was 155.9 cm., 6.7 cm. more than the 149.2 cm. of the women in Japan, and the difference is about the same as that of the young men. The average height of the 99 fathers in Los Angeles was 159.9 cm., which is 2.4 cm. more than that of the people of the same age in Japan, and that of the 99 mothers was 154.6 cm., which is 7.4 cm. more than the 147.2 cm. of the women in Japan. Dr. Ishiwara ascribes the superior height of the young men and women in Los Angeles to the superiority of their parents in constitution, the good climate and food, and an understanding on the part of the young people of the laws of health.

Society News

A new society, organized under the name of the Psychic Hygienic Society, held its first meeting, June 13, in the headquarters building of the Japan Red Cross at Shiba Park, Tokyo, under the chairmanship of Dr. Miyake. Lectures were given by Dr. Masaki on criminology and science and by Dr. Uyematsu on the movement of psychiatric hygiene.

Government Plans an Antituberculosis Campaign

Mr. Adachi, home minister of Japan, who has laid plans to eradicate leprosy from this country, is now attempting to stamp out tuberculosis. There are 300,000 cases of tuberculosis in Japan, and the tuberculosis deaths average over 123,000 a year. An investigation made on antituberculosis day, which was held April 27 this year, showed that there were 50,000 grave cases; about 10,000 of these persons were unable to obtain treatment because of their economic condition. There are only 2,300 beds for indigent patients. The minister considers it most urgent to improve the equipment of the sanatoriums. He therefore called an antituberculosis conference, August 3, at his official residence, and in attendance were delegates from the departments of education, communication, the army, the navy, law and railway, besides those from the Tokyo Imperial University, the branches of the Japan Red Cross Society hospital, and the antituberculosis societies. The following important questions were discussed: 1. The prevention of infection in students by putting dormitories or boarding houses under the charge of physicians. 2. The physical examination of applicants at schools or for employment. 3. Regulation of doubtful drugs used in the treatment of tuberculosis.

Fiftieth Anniversary of Discovery of the Tubercle Bacillus

Under the auspices of the Kitasato Institute for Infectious Diseases, a celebration will be held in honor of the discovery by Robert Koch of the cause of tuberculosis, half a century ago. The celebration will be held March 25, 1932, in Tokyo.

An Epidemic of Dysentery

Owing to the continuous rainy days in July this year, an epidemic of dysentery was prevalent in Tokyo. The total number of cases from January to July 12 was 3,972, and in July an average number of new cases was 50 a day, about 40 of which were in children.

Memorial Meetings for the Late Dr. Kitasato

The Japan Physicians' Association, whose president was formerly Baron Dr. Kitasato, held a special meeting to elect his successor in the Kogyo Club in Tokyo, July 2. Prof. Dr. Kitajima, chief of the medical department of the Keio University and member of the Kitasato Institute for Infectious Diseases, was unanimously elected. In the afternoon the association held a memorial meeting in honor of Dr. Kitasato. The service was held according to the Shito rite with the chief of the Izumo Shinto sect, Baron Senge, officiating, attended by the son of the deceased, Mr. Adachi, minister of the home department, Dr. Kitajima and several hundred other members. After addresses by Mr. Adachi and others, Dr. Takagi, a follower of the deceased scholar, eulogized the departed scientist. Another service was held, July 17, in honor of Dr. Kitasato in the same club under the auspices of seventeen societies of which he had been president, director or councilor. Addresses were given by Viscount Dr. Ishiguro, Viscount Kiyoura, Mr. Kubota, Dr. Takagi and Dr. Hata. A photograph and a life history of the deceased were given to each of the 800 in attendance.

Robert Koch had been enshrined in the Kitasato Institute for Infectious Diseases by his grateful follower Kitasato, and a memorial service was held every year by him and the staff of the institute. Now the followers of Kitasato are going to enshrine him also as the founder of the institute and of bacteriology in this country.

Conference for Prevention of Loss of Sight

Under the auspices of the Central Social Work Society, a conference was held in the conference hall of the social bureau of the home department, Tokyo, July 19, with the view of preventing people from losing their sight. More than 170 delegates from every local district attended. It was decided to give an impetus to the work for preservation of sight, and a sight preservation day will be held October 10 yearly.

Personals

Dr. Shiga, president of the Keijo Imperial University in Keijo, Korea, is said to be going to resign his post and to enter the Kitasato Institute for Infectious Diseases in order to pursue his studies on the bacillus of leprosy. He was formerly a member of the institute and is the discoverer of the Shiga bacillus. Among the seven who will be sent to France as exchange scholars between France and Japan, three medical men who have been named are Dr. Oyama from the Tokyo Imperial University (hygiene and bacteriology), Dr. Tomioka from the Kyoto Imperial University (psychonosology), and Dr. Tachikawa from the Keio Medical College.

Dr. Sera has been appointed professor of forensic medicine in the Kumamoto Imperial University.

Dr. Morinaga, lecturer in the medical department of the Tokyo Imperial University, died of acute meningitis, June 1.

Dr. Yamakawa, professor in the Kanazawa Imperial Medical College, has been appointed professor of otorhinolaryngology at the Osaka Imperial University.

Dr. Kobayashi, professor in the Keijo Imperial University, has been appointed professor of otorhinolaryngology of the Nagoya Imperial Medical College.

The First Menstruation of Japanese School Girls

The staff of obstetrics and gynecology in the Kumamoto Imperial Medical College has published the results of an investigation on the first menses of school girls in fifty-nine schools. The shortest period between the first and the second menses was a month, and the longest was four years and five months; that of 92 per cent of them was from one to six months. The average intervening period was 5.8 months. The menses of most of the girls continue for five days; next come those of four days, and then those of three days, though the average duration among the women in this country is from four to seven days.

Maternity Hospital for the Poor in Tokyo

There are three free maternity homes for the poor in Tokyo, at Tsukiji, Fukagawa and Asakusa, the last of which the municipal authorities are going to enlarge. It is expected to be completed in December. The establishment will also serve as a consultation center for pregnant women, and for teaching them birth control when they are so poor that they should avoid pregnancy. The homes will also keep the babies for the poor for six months and the midwives will call on the pregnant women who are unable to be in the hospital.

Oriental Red Cross Conference Postponed

The third Oriental Red Cross Conference, which was to be held in the Philippines this year, has been suspended because the fifteenth International Red Cross Conference is to be held in Tokyo in 1934. Therefore, the next oriental conference will meet jointly with the fifteenth international conference instead of being held in the Philippines this year.

New Hospital of Osaka Imperial University

For the use of practitioners and students, the university has established a hospital at Minato-ku, in Osaka, which was opened last May. A new institute for the study of leprosy has also been established at the university. Dr. Satani, Professor of dermatology in the university, is the chief. A new building for the institute will be erected in the suburb of the city.

BERLIN

(From Our Regular Correspondent)

Aug. 17, 1931.

Congress on Tuberculosis

Concerning his tuberculous patient, the first question that the physician must propose to himself is whether, at a given time, the body needs rest or a stimulus that will whip it into action, more or less. Especially before the beginning of a course of treatment in a sanatorium, the following question must be asked: Should the patient be sent to a sanatorium with an even, temperate climate, or to one with a mildly, moderately or vigorously stimulative climate? In selecting a resort for members of the sick benefit societies or for the war injured, this distinction has been observed for many years. The patient himself, by reason of mistaken ideas, usually expresses a preference for centers with the most stimulative climate. In compliance with the proposal of Seiffert, member of the Kommission für Tuberkulose im Mittelstand, a regulation has been adopted to the effect that aid in securing such forms of treatment shall not be granted until this preliminary question has been settled.

In addition to climate, there are other forms of stimulation in the practice of the physician at home and at the sanatorium. Among these are singing exercises and many kinds of gymnastics. Their application was discussed by Dr. Wiese, chief physician of the Landeshut sanatorium in Silesia. He emphasized, however, that the advantages are to be expected only in cases of a certain favorable type and with careful adjustment of the exercises—otherwise more damage than benefit will result.

Increasing importance attaches to the surgical treatment of pulmonary tuberculosis, particularly its most frequent form: artificial pneumothorax. On this subject, papers were presented by Professor Zinn, Berlin, clinician at the Krankenhaus Moabit, and Dr. Schröder, *stadtmedizinalrat* of Oberhausen. Artificial pneumothorax was invented by Forlanini of Padua and was introduced in Germany, about twenty-five years ago, by Brauer of Hamburg. The successful results, ranging from 20 to 30 per cent in earlier years, have risen of late to 50 per cent or more. About 70 per cent of the patients become free from sputum and in from 10 to 15 per cent more of the patients, although the expectoration continues, the sputum contains no bacilli. This fact is important owing to the diminution of the danger of infective transmission. The number of persons with open tuberculosis in Germany may be placed at 175,000, 40,000 of whom would doubtless be amenable to treatment with artificial pneumothorax, as compared with 17,000 actually treated by the method. The length of treatment will range from one and one-half to two and one-half years; the injections of gas into the thoracic cavity must be repeated from thirty to forty times during the course of treatment. The stay in an institution will cover a period of from eight to twelve months. A patient will be able to resume his work in some cases at the end of a year; in other cases not before a year and a half. It is important that definite arrangements be made for protracted treatment, through agreements between sick benefit associations, provincial insurance institutes and the communal authorities.

From the experiences of the tuberculosis aid center in Neukölln, Dr. Zadek reported even more favorable results from the surgical treatment of pulmonary patients. They are important because of the comparatively early recovery of a working capacity. Whether or not infections are to be feared within the sanatoriums, and whether a patient with closed tuberculosis can be reinfected by a patient with open tuberculosis, is often discussed. Chief Physician Dr. Deist of Ueberruh spoke on the subject on the basis of the experiences in the sanatoriums, and Prof. Bruno Lange considered the problem from the point of view of experimental research. It appears certain that, unless proper care is exercised, healthy persons may become infected in sanatoriums; hence there are strict provisions in regard to the regular examinations of the personnel. But no observations have been made that point to the need of strict separation in sanatoriums of patients with closed and patients with open tuberculosis. The matter has a practical and also psychic importance; an immoderate fear of bacillus infection is not justified. But also Lange's experiments show that there is slight danger of infection. There is no tuberculosis without the tubercle bacillus, but it does not depend on the number of bacilli entering the organism. According to Lange, a so-called mass infection does not exist; a single bacillus may suffice to produce an infection. The infection depends first and last on the constitution of the individual, as to whether or not the bacillus produces disease or the body is able to wage a successful fight against disease. If after conquering the first manifestations of infection a person develops new manifestations, that is not so often the result of a new infection as of fluctuations in the power of resistance, such as may occur in the course of any one's life.

Roentgenography is important in the diagnosis of tuberculosis, provided it is skilfully applied. However, Redeker warns against exaggeration. If the new demands are to be satisfied, in many places not only new apparatus but also new power plants would have to be installed.

What roentgen diagnosis can accomplish was brought out in the address of Dr. Lochtkemper of Düsseldorf on pneumonoconiosis and tuberculosis due to pneumonoconiosis. Many kinds of dust to which workmen are exposed bring about changes in the lungs. Only the roentgenogram will reveal the peculiarities of silicosis, which, although fundamentally different from tuberculosis, may be associated with tuberculosis. Silicosis sometimes places the physician in a difficult position when called on to give an expert opinion from the standpoint of the occupational origin.

In the crusade against tuberculosis, in which it is highly important to discover persons capable of infecting others, series of examinations of persons living in contact with the tuberculous play a significant part.

It is always difficult to decide to what causes an increase or a retrogression of an endemic disease may be due; but that there has been a marked retrogression of tuberculosis may be seen from the report submitted by Dr. Helm, general secretary of the Deutsches Zentralkomitee zur Bekämpfung der Tuberkulose. As against a tuberculosis mortality of 12.4 per 10,000 of population in 1913, and of 20.4 in 1918, the last year of the war, in 1929 the mortality had dropped to 7.5. As the rate for 1928 was likewise 7.5, that may indicate a standstill. However, in the cities of more than 15,000 population, from which the preliminary figures for 1930 are available, a mortality of 7.8, as compared with 8.7 in 1929, was recorded. Favorable though these figures are, the majority of the deaths occur among the 20 to 40 age groups, the important years from the standpoint of the family and the economic life of the nation.

The Purchase and Distribution of Radioactive Substances

The federal commission for the control of cancer summoned experts recently to discuss the question of the purchase and distribution of radioactive substances such as radium and mesothorium. As a result, the Deutsches Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheit and the Reichsausschuss für Krebsbekämpfung agreed on certain criteria, which are set forth in a communication by Professor Friedrich: The purchase of radioactive substances should be considered only by such institutions as have an experienced radiologist for the therapeutic application of such substances. The use of small quantities of radioactive substance for the local treatment of carcinomas is the method indicated by the present status of medical knowledge, whereas the treatment *à distance* with heavy doses of several grams is a method concerning which no definitive opinion can be given as yet. Supplies of radioactive substances should be available in all university clinics and large hospitals, the amount ranging from 200 to 500 mg., according to the population of the area for which provision is made. Some centers should have an additional amount in order that they may serve also as research centers. Such central institutes should have an average of 50 mg. of radioactive substance for each bed designed solely for patients to be irradiated. A central institute should have not less than twenty beds set apart for the use of cancer patients to be irradiated with radioactive substances, which presupposes accordingly the possession of 1,000 mg. of radioactive substance. Since experience has shown that the biologic effects of the rays emanating from radium and mesothorium are of equal value, in the purchase of supplies the choice as between radium or mesothorium should depend exclusively on economic and practical considerations. The legal regulation of the application of radioactive substances for therapeutic purposes is a problem for the near future.

Visit of American Radiologists

A group of American radiologists visited recently the Universitätsfrauenklinik and the Roentgen Institute of the University of Erlangen. Professor Wintz, director of the clinic, delivered an address on the treatment of cancer.

Marriages

Edward Gipstein, New London, Conn., to Miss Edith Hill Gruberg of Montgomery, Ala., in Philadelphia, August 9.

Joseph Francis Jenovese, St. Michael, Pa., to Miss Anne Dolores Corabillo of Hartford, Conn., July 25.

Neal Dow Crawford, South Pekin, Ill., to Miss Bernadine L. Potts of Deer Creek, September 1.

John William Harmon Beach, Arlington, Ohio, to Mrs. Cora Mills of Findlay, July 23.

James Farra Van Meter, Lexington, Ky., to Miss Harriet Ann Drury of Fulton, Ill., June 27.

Llewellyn Lee Ashburn, Norfolk, Va., to Miss Serena Dryden of Crisfield, Md., July 7.

Samuel H. Epstein, Boston, to Miss Ethel Henin of Springfield, Mass., July 31.

Clyde Gray Culbertson to Miss Margaret O'Neal, both of Indianapolis, June 27.

Milton Trautmann, Brooklyn, to Miss Esther Trachte of Madison, Wis., July 1.

Joseph A. Graneto to Miss Jennie Naomi Reinwald, both of St. Louis, June 10.

Jack Agins, Detroit, to Miss Minna Maguite of New York, September 1.

Colvin C. Perdue, Mobile, Ala., to Miss Jessie Moore, April 27.

William R. Meeker, Mobile, Ala., to Miss Isabelle Cowan, June 9.

Deaths

John Blair Deaver ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1878, died September 25, aged 76, in Wyncote. Dr. Deaver was born near Buck, Lancaster County, Pa., and after education in the public schools was graduated from the University of Pennsylvania School of Medicine. He served for a year as resident physician at the Germantown Hospital and for a year with the Children's Hospital, after which he began private practice in Philadelphia, serving also as volunteer demonstrator in anatomy at the university medical school. In 1891 he succeeded Dr. Joseph Leidy as assistant professor of applied anatomy. In 1900 he resigned; then in 1914 he became professor of the practice of surgery and four years later John Rhea Barton Professor of Surgery and head of the surgical department. He was for many years chief surgeon of the German, now the Lankenau, Hospital. Dr. Deaver was an indefatigable worker. His contributions to medical literature were many, including a three-volume work on "Surgical Anatomy," a book on "Appendicitis: Its History, Pathology and Treatment," on "Diseases of the Breast," on "Enlargement of the Prostate," and on "Surgery of the Upper Abdomen," in which he had the cooperation of Dr. A. P. C. Ashhurst. His recognitions were many. He was secretary of the Section on Surgery and Anatomy of the American Medical Association in 1889-1890, a member of the American Surgical Association and president of the American College of Surgeons. When Dr. Deaver reached the retirement age in 1921, the limit was raised for two years successively in order that he might be permitted to continue his work. His death resulted from a severe secondary anemia for which he had undergone eight blood transfusions. He was a conspicuous figure in every medical gathering, especially distinguished by his wit, his dramatic method of expression and his scientific comments which were based on an enormous surgical experience.

Francis Joseph McCullough ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1905; member of the American College of Surgeons; demonstrator of obstetrics at his alma mater; served during the World War; aged 49; obstetrician to St. Vincent's Hospital for Women and Children and St. Joseph's Hospital; assistant obstetrician to the Jefferson Hospital; on the staff of the Misericordia Hospital, where he died, August 18, of peritonitis following a ruptured appendix.

Augustus Hartje Eggers ⊕ Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1900; served during the World War; formerly member of the city and state departments of health and county medical director; connected with the regional office of the U. S. Veterans' Bureau; aged 56; died, August 16, of pneumonia.

Charles Hopkins Long, Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1888; on the staffs of the Illinois Eye and Ear Infirmary, and the Post Graduate Hospital; aged 67; died, August 19, in the St. Francis Hospital, Escanaba, Mich., of injuries received in an automobile accident.

Robert Gates Reed, Woonsocket, R. I.; Boston University School of Medicine, 1877; for twenty-three years member of the school committee; on the staffs of the Woonsocket (R. I.) Hospital and the Homeopathic Hospital of Rhode Island, Providence; aged 80; died, August 22, of heart disease.

Ernest Frank Day ⊕ Arkansas City, Kan.; University Medical College of Kansas City, 1900; served during the World War; for many years president of the board of education; on the staff of the Mercy Hospital; aged 54; died, August 9, in St. Francis' Hospital, Wichita, of duodenal ulcer.

Chauncy Mott Benedict ⊕ Salt Lake City, Utah; Cornell University Medical College, 1899; past president of the Salt Lake County Medical Society; served during the World War; on the staff of St. Mark's Hospital; aged 55; died, August 29, of cerebral hemorrhage.

William S. Williams, Orient, Ohio; Kentucky School of Medicine, Louisville, 1893; member of the Ohio State Medical Association; on the staff of the Orient Institution for Feebleminded; aged 68; died, August 20, in the Grant Hospital, Columbus, of heart disease.

Edward Fayette Cary ⊕ New York; Baltimore Medical College, 1906; member of the American Academy of Ophthalmology and Oto-Laryngology; on the staff of the Manhattan Eye, Ear and Throat Hospital; aged 55; died, August 14, of agranulocytic angina.

William Thomas Rogers, Luverne, Ala.; University of Alabama Medical Department, Mobile, 1900; member of the Medical Association of the State of Alabama; aged 57; died, August 4, in a hospital at Montgomery, of septicemia, due to a carbuncle.

John Wesley Elerick, Ottumwa, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1890; member of the Iowa State Medical Society; on the staff of the Ottumwa Hospital; aged 80; died, August 13, in Iowa City, of carcinoma of the liver.

George Knapp Farris ⊕ Vienna, Ill.; St. Louis University School of Medicine, 1906; past president of the Johnson County Medical Society; aged 51; died, September 1, in the Lightner Hospital, Harrisburg, of injuries received in an automobile accident.

Fletcher Langdon, Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1910; member of the Ohio State Medical Association; aged 45; died, April 17, of cardiorenal vascular disease and acute dilatation of the heart.

Allen Crum Davis ⊕ Lamar, Colo.; University of Colorado School of Medicine, Denver, 1909; formerly secretary of the Prowers County Medical Society; aged 48; died, August 23, in Pueblo, of acute coronary obstruction.

John Sheridan Wiseman, Beaver, Ohio; Miami Medical College, Cincinnati, 1893; member of the Ohio State Medical Association; aged 65; died, August 22, at Atlanta, Ga., of cystitis, chronic nephritis and pyelitis.

David Allen Walker, Friendship, Tenn.; Vanderbilt University School of Medicine, Nashville, 1880; formerly mayor of Trenton; aged 75; died, August 13, of cholecystitis and carcinoma of the gallbladder.

Elisha Jefferson Gray, Tecumseh, Okla.; University of Nashville (Tenn.) Medical Department, 1889; member of the Oklahoma State Medical Association; aged 68; died, August 5, of cerebral hemorrhage.

Charles Hyatt Richardson, Montezuma, Ga.; College of Physicians and Surgeons, Baltimore, 1883; member of the Medical Association of Georgia; aged 72; died, August 17, of carcinoma of the face.

Miles Frost Blackwell, Brownwood, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1929; aged 27; died, August 27, in the Charity Hospital, Shreveport, La., of heart disease.

William A. Ligon, Pewee Valley, Ky.; University of Louisville School of Medicine, 1874; Civil War veteran; aged 92; died, August 6, of sarcoma of the right testicle and arteriosclerosis.

Harris Diaz Whittington, Amarillo, Texas; Baylor University College of Medicine, Dallas, 1915; served during the World War; aged 42; died, in August, at Fort Worth, of heart disease.

George W. Hoxsey, Wenatchee, Wash.; American Medical College, St. Louis, 1889; member of the Washington State Medical Association; aged 71; died, July 10, of carcinoma of the stomach.

Theodore Frederic Trumpp, Brooklyn; Long Island College Hospital, Brooklyn, 1903; member of the Medical Society of the State of New York; aged 52; died, August 28, of encephalitis.

Ernest L. Martin ⊕ Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1900; aged 55; died, August 14, in the University Hospital, Ann Arbor, of acute monocytic leukemia.

John Joseph Haley ⊕ Gloucester City, N. J.; Jefferson Medical College of Philadelphia, 1890; aged 66; died, September 1, in the Cooper Hospital, Camden, of carcinoma of the prostate.

William Edgar Williamson, Dyersburg, Tenn.; Memphis Hospital Medical College, 1905; aged 68; died, August 6, in the Baird-Brewer General Hospital, of cardiovascular renal disease.

Walter Spencer Wunderly ⊕ Bridgeport, Conn.; Tufts College Medical School, Boston, 1919; on the staff of the Bridgeport Hospital; aged 36; died, August 13, of heart disease.

Thomas Vincent Higgins, Brooklyn; Long Island College Hospital, Brooklyn, 1907; aged 46; died, August 26, in St. Vincent's Hospital, New York, of septicemia and heart disease.

David Robert Kline, Cleveland; Cleveland College of Physicians and Surgeons, 1896; served during the World War; aged 55; was found dead in bed, August 7, of heart disease.

T. J. Laird, Lorenzo, Texas; Physio-Medical College of Texas, Dallas, 1906; aged 73; died, August 16, in a hospital at Lubbock, of acute dilatation of the heart and chronic nephritis.

Monroe S. Blazer, Manito, Ill.; Missouri Medical College, St. Louis, 1874; Civil War veteran; aged 88; died, August 22, in the St. Francis' Hospital, Peoria, of chronic myocarditis.

Dwight Sidney Woodworth ⊕ Fitchburg, Mass.; Medical Department of Columbia College, New York, 1876; aged 79; died, August 31, of mitral insufficiency and arteriosclerosis.

Theodore Hudson, Marion, Ill.; University of Nashville (Tenn.) Medical Department, 1878; aged 81; died, September 1, as the result of injuries received in an automobile accident.

George Benson Kuykendall, Portland, Ore.; Willamette University Medical Department, Salem, 1872; aged 88; died, July 24, of coronary arteriosclerosis and diabetic mellitus.

Samuel Stevens Dick, Wyoming, Ohio; University of Cincinnati College of Medicine, 1928; aged 36; died, August 28, *in the Cincinnati General Hospital,* of acute toxic hepatitis.

Harry M. Ferguson ⊕ Morris, Ill.; Rush Medical College, Chicago, 1890; past president of the Grundy County Medical Society; aged 61; died, September 4, of angina pectoris.

Paul Christen Jensen, Manistee, Mich.; University of Michigan Medical School, Ann Arbor, 1882; health officer of Manistee; aged 76; died, August 16, of heart disease.

William Tillman Duke ⊕ Glen Allan, Miss.; University of Tennessee College of Medicine, Memphis, 1916; aged 41; died, July 23, in Galveston, Texas, of angina pectoris.

Herman Robergh, New York; Alexander University, Finland, 1900; aged 58; died, August 21, in the Presbyterian Hospital, of pulmonary tuberculosis and diabetes mellitus.

Edward Shepherd Grigsby, Brentwood, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1894; aged 63; died, July 3, of chronic interstitial nephritis.

Madison Jackson Gray, Portland, Ore.; University of Nashville (Tenn.) Medical Department, 1880; aged 78; died, June 26, of chronic myocarditis and endocarditis.

Charles Clement Brace, Tarrytown, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1875; aged 81; died, August 26, at Star Lake, N. Y., of pneumonia.

Edward A. Younger, San Francisco; Medical Department of the University of California, 1879; aged 70; died, August 15, of chronic myocarditis and diabetes mellitus.

Perry C. Thompson, Evanston, Ill.; Rush Medical College, Chicago, 1883; member of the Illinois State Medical Society; aged 81; died, August 13, of heart disease.

John Alexander Morgan, Yonkers, N. Y.; New York Homeopathic Medical College and Hospital, 1900; aged 71; died, August 13, of cerebral hemorrhage.

Francis Rene Martin, Crowley, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1885; aged 72; died, June 25, of nephritis.

Frank H. Bierbaum, Cincinnati; Cincinnati College of Medicine and Surgery, 1894; aged 66; died, August 20, of chronic nephritis and heart disease.

Elias P. Robinson, New York; Long Island College Hospital, Brooklyn, 1902; aged 66; died, June 6, of hypertension and disease of the coronary artery.

Robert L. Anderson, Inverness, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; aged 55; died, May 31, of lobar pneumonia and Friedreich's ataxia.

R. L. Robinson, Troy, Mo.; St. Louis Medical College, 1876; aged 77; died, August 4, in St. Anthony's Hospital, St. Louis, of cerebral hemorrhage.

Francis Belden Putnam, Syracuse, N. Y.; Homeopathic Hospital *College, Cleveland, 1879; aged 80; died, August 22,* of carcinoma of the stomach.

Joseph C. Remi Charest, Marshall, Minn.; School of Medicine and Surgery of Montreal, Que., Canada, 1885; aged 69; died, August 6, of nephritis.

Helena A. Hunt, Los Angeles; University of Southern California School of Medicine, 1907; aged 68; died, July 7, of carcinoma of the esophagus.

Charles Frederick Wade, Piedmont, Calif.; Cooper Medical College, San Francisco, 1889; aged 78; died, July 16, of arteriosclerosis and senility.

William Wright Haden, Huntsville, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; aged 74; died, August 13, of senility.

James Horace Smith, Orlando, Fla.; Atlanta Medical College, 1877; formerly mayor and member of the school board; aged 78; died, June 20.

Annie Hungerford White, Chicago; Hahnemann Medical College and Hospital, Chicago, 1896; aged 84; died, August 20, of coronary sclerosis.

Thomas E. Reed, Middletown, Ohio; Hahnemann Medical College of Philadelphia, 1872; aged 86; died, August 15, of cerebral hemorrhage.

Charles William Reagan, Macon, Mo.; University of Missouri School of Medicine, Columbia, 1884; aged 75; died, July 31, of heart disease.

George B. M. Erwin, Granite City, Ill.; Barnes Medical College, St. Louis, 1900; aged 68; died, September 2, of cerebral hemorrhage.

Walter William Stein ⊕ Baytown, Texas; Baylor University College of Medicine, Dallas, 1926; aged 28; was drowned, July 5.

Lewis D. Whissenant, Morris, Ala. (licensed, Alabama, 1878); Confederate veteran; aged 84; died, August 12, of arteriosclerosis.

William Mc. Austin, Beaukiss, Texas (licensed, Texas, under the Act of 1907); aged 82; died, August 10, of cerebral hemorrhage.

George L. McNeal, Kokomo, Ind.; Eclectic Medical Institute, Cincinnati, 1898; aged 59; died, August 8, of cerebral hemorrhage.

Jacob E. Kitchel ⊕ Galveston, Ind.; Medical College of Indiana, Indianapolis, 1902; aged 57; died, August 15, of tuberculosis.

William Frederick Hurst, New York; Syracuse University College of Medicine, 1925; aged 30; was found dead, August 31.

Robert Estes Lee, Oxford, Ind.; Kentucky School of *Medicine, Louisville, 1890; aged 64; died, August 15, of* carcinoma.

Eberle K. Shelton, Sr., Colorado Springs, Colo.; Cincinnati College of Medicine and Surgery, 1876; aged 78; died, August 8.

Franklin E. L. Hester, Glenwood, Iowa; Missouri Medical College, St. Louis, 1883; aged 71; died, August 11, of pernicious anemia.

James F. Noland, Logansport, Ind.; Kentucky School of Medicine, Louisville, 1886; aged 72; died, August 25, of heart disease.

Thomas Annerson Jones, Birmingham, Ala.; Birmingham Medical College, 1898; aged 63; died, in August, of heart disease.

Alexander S. Tuchler, San Francisco; California Medical College, 1892; aged 71; died, July 8, of cerebral hemorrhage.

Albert W. Post, Tioga Center, N. Y.; Geneva (N. Y.) Medical College, 1871; aged 82; died, August 16, of carcinoma.

John J. Beekman, Columbus, Ohio; Columbus Medical College, 1876; aged 79; died, August 23, of pyelonephritis.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Red Cross Chill and Fever Tonic.—The Cash Bros. Drug Company, Inc., Jacksonville, Fla., shipped in February, 1929, into Georgia a quantity of Red Cross Chill and Fever Tonic that was declared misbranded. The preparation consisted essentially of quinine sulphate (about 6½ grains to the fluid ounce), iron (ferric) chloride, epsom salt, and a small amount of hydrochloric acid. The claims that it was a remedy for all malarial diseases, intermittent fever, bilious fever, influenza, etc., were declared false and fraudulent, and in September, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17209; issued January, 1931.*]

Vindor Diabetic Wine.—The Zarol Medical Research, Inc., New Haven, Conn., shipped in September, 1929, into Pennsylvania a quantity of Vindor Diabetic Wine that was declared misbranded. The stuff consisted essentially of extracts of plant drugs, including cinchona, a phosphorus compound, alcohol and water. The product was declared misbranded, first, because the claim that it was a wine was false and misleading in that the article contained ingredients not native to wine; further, the claim that it was a remedy for diabetes was declared false and fraudulent. In March, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17210; issued January, 1931.*]

Pinoleum.—This preparation was being offered for sale in December, 1929, in Porto Rico. It consisted essentially of mineral oil containing small amounts of volatile oils, including camphor, menthol and pine, eucalyptus and cassia oils. The claims that it was a remedy for influenza, nose and throat disease, hay fever, bronchitis, etc., were declared false and fraudulent. In March, 1930, Llompart Brothers Company of San Juan, Porto Rico, claimed the property. Judgment was entered and the product was released to these people upon the execution of a bond requiring it to be relabeled truthfully.—[*Notice of Judgment 17213; issued January, 1931.*]

Laxative Cold and Grippe Tablets.—In December, 1928, Parke, Davis and Company, Detroit, shipped to Memphis, Tenn., one million Laxative Cold and Grippe Tablets that were declared misbranded. The tablets consisted, essentially, of acetanilid (1.85 grains per tablet), cinchonidine and a laxative plant drug. The product was declared misbranded, because while the tablets contained acetanilid, the package failed to bear a statement on the label of the quantity and proportion of this drug; furthermore, the labels bore false and fraudulent statements regarding the therapeutic effects of the drug. In February, 1930, the J. R. Watkins Company of Memphis appeared as claimant, judgment of condemnation and forfeiture was entered, and the court permitted the product to be released to the Watkins concern on payment of the costs and the execution of a bond, conditioned in part that the product be relabeled truthfully and in accordance with the law.—[*Notice of Judgment 17216; issued January, 1931.*]

Lax Cold Grippe Tablets.—Strong-Cobb and Company, Cleveland, Ohio, shipped in November, 1928, to Memphis, Tenn., 450,000 Lax Cold Grippe Tablets that were declared misbranded. The tablets consisted essentially of acetanilid (1.85 grains per tablet), cinchonidine and a laxative plant drug. The product was declared misbranded because the packages failed to bear a statement on the label of the quantity or portion of acetanilid; furthermore, the label bore false and fraudulent claims for curative effect. In February, 1930, the J. R. Watkins Company of Memphis appeared as claimant. Judgment of condemnation and forfeiture was entered, and the court permitted the product to be released to the Watkins Company on payment of the costs and the posting of a bond, conditioned in part that the preparation be relabeled under the supervision of the Department of Agriculture.—[*Notice of Judgment 17217; issued January, 1931.*]

Chill-Check.—The Bedsole-Colvin-O'Dell Drug Company, Birmingham, Ala., shipped in July, 1929, into Mississippi a quantity of Chill-Check that was declared misbranded. The stuff consisted essentially of epsom salt, iron chloride, quinine sulphate (3.47 grains to the fluidounce), and water. The claims that it was a remedy for influenza, chills and fever, malaria and biliousness were declared false and fraudulent, and in March, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17220; issued January, 1931.*]

Stopkofin.—The Piuma Italian Pharmacy, Los Angeles, Cal., shipped in March, 1929, into Texas a quantity of Stopkofin that was declared misbranded. The preparation consisted, essentially, of ammonium chloride, ammonium carbonate, potassium iodide, antimony and potassium tartrate, extracts of plant drugs including podophyllum, a trace of chloroform, alcohol (28 per cent), sugar and water. It was declared misbranded, first, because the amount of alcohol present was not declared; in fact, the bottle label stated that the product contained no alcohol. It was further declared misbranded, because the claim that it was a remedy for coughs, bronchitis, spasmodic croup, influenza, etc., was declared false and fraudulent. In January, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17222; issued January, 1931.*]

Correspondence

AN INTERNATIONAL ORGANIZATION FOR THE DISSEMINATION OF MEDICAL KNOWLEDGE

To the Editor:—During the last few months, brief notices have appeared in the medical journals and daily press of a method of treatment for Addison's disease discovered by American scientists. In none of the European publications, however, has a comprehensive report of this most important discovery appeared.

January 24, an article entitled "Addison's Disease: Experiences in Treatment with Various Suprarenal Preparations," by Drs. L. G. Rowntree, C. H. Greene, W. W. Swingle and J. J. Pfiffner, appeared in The Journal. In the February 11 issue of the *Proceedings of the Staff Meetings of the Mayo Clinic* appeared a report by Drs. R. G. Ball and John Lansbury on two patients suffering from Addison's disease, treated with success by means of the suprarenal cortical hormone of Swingle and Pfiffner.

Since these articles appeared to have escaped general notice, it seemed to me opportune to call attention to the facts they record in an article, which appeared in the April issue of *Fisiologia e medicina.*

The fact itself is notable, in theory and practice. Not less striking is the comment of Dr. L. G. Rowntree of the Medical Division of the Mayo Clinic: "There is one dire need, the need for a great deal of experimental work. This has been impossible, for at no time have we had sufficient material for thorough trial. A fund should be raised, sufficient to save the lives of the 500 to 1,000 patients who will die of Addison's disease this year without such aid."

It is significant that such an appeal can emanate from a source of so great scientific and economic authority as the Mayo Clinic.

Two questions immediately present themselves.

How long will it take before this important discovery is known to the medical profession, throughout the civilized world, and before it is possible to amass sufficient funds and material for the experimental work asked for by the Mayo Clinic?

How long will it be before the new hormone may become universally available for the saving of the hundreds and thousands of lives sacrificed yearly to this fell disease?

It would be not less interesting to know how much time elapsed between the discovery of insulin and its use in diabetes, the discovery of extracts of liver for the cure of pernicious anemia, and the general application of this knowledge; and how many lives were lost needlessly during this period. The pace of scientific discovery is so rapid that new scientific facts of analogous importance may be expected from year to year to be given to the world. Yet the announcement of such discoveries, often prematurely and inaccurately reported in spite of the prudent reserve of scientists and clinicians, is actually made in so empiric a fashion that much time is lost, and in many cases false hopes are raised for the cure of disease for which no saving discovery has yet been made.

Is it possible to suggest a method less wasteful of human lives and hopes?

I submit that it might readily be made possible by the organization within some one of the great international bodies (such as the International League of the Red Cross or the League of Nations) of a committee of eminent scientists and clinicians, charged with the duty of observation and propaganda, a committee or group in relation with an analogous body in each individual nation. Representatives of the individual nation would bring to the attention of the international committee such discoveries made by their countrymen as are of proved and indisputable value. The international committee would be able not only to stamp such discoveries with their authority but to make them known and available so rapidly that many lives could be saved which are now sacrificed to prejudice, ignorance and delay. An official pronouncement, by an international committee of unquestioned competence, and an efficient service of universal propaganda would, I feel sure, not only be easily practicable but would mark a step forward in the international campaign for the conquest of disease. I am the more confident that this suggestion may be acted on since other projects of mine in the field of international social hygiene have during and since the war been put successfully into practice through the International Red Cross (Geneva) and the League of the Red Crosses (Paris).

Ettore Levi,
Via Antonio Bertoloni No. 1,
Rome, Italy.

Formerly Member of the Supreme Council of Hygiene and Vice President of the Italian Board of the Invalids of War.

DENIAL OF TESTIMONIAL FOR ADENEMIN

To the Editor:—There is being circulated a photostat letter written by Dr. A. P. Andrus of my clinic to the Adenemin Company of Chattanooga, Tenn., extolling the virtues of Adenemin, a remedy of which I personally know nothing.

Dr Andrus, the author of the letter, is dead and when he wrote it could not have thought of the embarrassment it might cause me.

I wish to disclaim any knowledge of this letter until a copy of it reached me through the mail. Had I been consulted about it I would not have approved the sending of such a letter from our clinic.

I wish the profession to know that this letter was written without my knowledge or consent and has only brought me embarrassment and chagrin.

J. M. Dodd, M.D., Ashland, Wis.

PROPHYLAXIS OF RINGWORM OF THE FEET

To the Editor:—I have read with much interest Osborne and Hitchcock's article "The Prophylaxis of Ringworm of the Feet" as it appeared in The Journal, August 15. I found their contribution valuable for two particular reasons: It offers a practical means of preventing probably the most common of all skin disorders. Secondly, there are bacteriologic conclusions to substantiate the clinical observations.

In reference to their article, there are important points I should like to discuss. In comparing their use of from 0.5 to 1 per cent solution of sodium hypochlorite (a modified Dakin or Labarraque solution) with mine of from 3 to 15 per cent *sodium thiosulphate (The Journal, April 18)*, Osborne and Hitchcock state concerning the latter that "carrying this chemical into the pool may have disastrous consequences because of the reduction of sodium hypochlorite [in the pool] to sodium chloride." With my procedure there was no danger of the thiosulphate being carried into the pool for "each pupil on leaving the shower was requested to immerse the feet in this [thiosulphate] chemical bath on the way to the locker." The procedure was: locker room, shower, pool, shower, foot bath, locker room. Daily chlorine content and results of frequent bacteriologic examinations of the pool water were the same after using sodium thiosulphate prevention as before. It is rather universal for the shower to be used immediately before the pool is entered.

If the chemical behavior of the two substances is to be discussed, it might be well to note that sodium hypochlorite solutions are relatively unstable unless special solutions are employed. These are more expensive. In general, sodium hypochlorite solutions should be maintained at low temperatures with excess alkali and in the absence of any substance such as iron or the heavy metals which might act catalytically to promote a conversion to the chlorate. It is possible, of course, to make a cheap, fresh hypochlorite solution in the fashion employed by the housewife when making the so-called Javel water. To those familiar with this method, the objections of a milky solution plus the knowledge required to make a solution of definite concentration are obvious.

The authors state also that "higher percentages of sodium thiosulphate are required as a fungicide and the chemical is therefore much more expensive than sodium hypochlorite." The pea sized sodium thiosulphate crystals used for the foot bath make the bath cost less than one-tenth that of a similar solution of sodium hypochlorite.

Furthermore, as I have mentioned, "it undoubtedly is frequently not so much the medicament that fails as it is the method of application." I firmly believe that the means "the foot bath" was more important in itself than was either of the chemicals. Mercurochrome, iodine and other popular remedies frequently fail because "swabbing is usually done on the more important areas and not the more obscure where the tinea may be just as plentiful as a constant source of reinfection." The foot bath covers all areas of the feet. However, it has certain disadvantages. It must be prepared for use each day. It requires a special container or a built-in floor recess. It can be applied only to the floors and to the feet—not to the footwear, which form good culture mediums for the organisms and are possibly the greatest causes of reinfection. The liquid, too, would be rather cumbersome for other than a well organized cooperative institution, as a large public school.

"A powder of 20 per cent sodium thiosulphate in boric acid has been tried with much success on feet, footwear, and floors." To secure the best results two triads must be remembered—*floors, feet* and *footwear* for the *prevention, treatment,* and *prevention of reinfection.* The solution falls short—the powder takes care of all. On the floors the powder, being soluble, is clean and forms no scum. It is ready at all times in proper proportions and it is not necessary to rely on any one to make fresh solutions of the proper strength. It can be used for individuals or for groups. It can be used in any school or institution, large or small, or even in the home. It requires no definite set-up or organization. Most important of all, the powder form is an ideal means—most practical, thorough and efficient—requiring a minimum of time and effort in its application. It obviates the need of foot pans or "wells" in the floors. The powder has proved successful in the treatment of many cases of long standing in adults as well as in children.

William L. Gould, M.D., Albany, N. Y.
Medical Supervisor of Schools.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HAZARDS IN MINING POTASSIUM NITRATE

To the Editor:—We are confronted with a new enterprise, that of mining nitrate of potash. I wish to know whether any special hazard relative to the health of the laborers exists in this new class of mining. So far as I know, no potash is mined in the United States. I have noticed some unusual liver troubles, as well as numerous sores about the hands and feet of the workers. I would appreciate your answer through The Journal. M. B. Culpepper, M.D., Carlsbad, N. M.

Answer.—This reply is limited to mining operations and specifically does not include refining of potassium nitrate or the mining of other forms of potassium, such as are obtainable from alunite. Apart from hazards attending mining in general, the small content of potassium nitrate may be associated with gross amounts of siliceous mineral material such as feldspar and glauconite. Manipulation of such mined material may introduce the hazard of silica dust. Sodium carbonate is likewise found along with potash and if present in large amounts may give rise to skin lesions among exposed workmen. Any mineral dust is harmful when taken into the body by respiration. However, on a relative basis, most earthy dusts are harmless compared with the dangerous qualities of silica and silicates, including asbestos. If, however, the nitrate is present in the crude mineral as mined in such quantities as to exceed 1 per cent of the dust in very dusty operations, some harm may be expected. When the concentration within the blood is in excess of 0.05 per cent, potassium nitrate becomes toxic. Anemia, low hemoglobin, loss of weight, low grade nephritis, excessive fatigability, low blood pressure, bradycardia and headaches are possibilities. Under experimental conditions it has been found that undue amounts of chlorides are lost from the body when potassium nitrate is present in the blood stream. Assuming this to be true, an unusual hazard arises. Whenever profuse perspiration is sustained, under any work conditions, large amounts of chlorides are lost (easily approximating 20 Gm. daily). This loss, if not replaced through the addition of sodium chloride to the drinking water supply (from 0.25 to 1 per cent), results in discomfort and much lowered work capacity. If potassium nitrate accelerates this chloride loss, a greater degree of incapacity may arise.

The newness of this form of mining in this country has produced no experience on which to predicate definite statements. This comment, therefore, is made guardedly.

RISE IN TEMPERATURE DURING MENSTRUATION

To the Editor:—Could you refer me to a source of information on the subject of body temperature in relation to the menstrual cycle? I have a patient with a periodic rise of about 1 degree, beginning ten or twelve days after menstruation and dropping to normal at the period. After a day or two there is an afternoon rise to around 99, which continues until time for the next rise (from ten to twelve days). Even if the primary cause of the fever is an infection (probably it is tuberculosis), the periodicity to me suggests a relation to the ovarian or the pituitary function. I should like to read some literature on the subject. Please omit name. M.D., California.

Answer.—A fairly large number of contributions have been made concerning the effect of the menstrual cycle on the body temperature. A summary of some of them may be found in Emil Novak's "Menstruation and Its Disorders," New York, D. Appleton & Co., 1921, pp. 85-87. Additional information may be found in H. Vignes's "Physiologie gynécologique et médicine des femmes," Paris, Masson et Cie, 1929, pp. 175-179. There seems to be no uniformity of opinion concerning this question. Some authors believe that the menstrual cycle has no effect on the temperature. Others maintain that there is a characteristic elevation of temperature a few days before the onset of bleeding and a drop during the time of the menstrual flow, whereas still others assert that just the reverse of this is the truth. Most authors who believe in a "menstrual wave" are of the opinion that there is an elevation of temperature a few days before the menstrual period. Since in the case cited there is not much rise in temperature, it may be that this patient exhibits a true "menstrual wave." Some gland or glands of internal secretion, most likely the pituitary and the ovaries, may then be held responsible for this occurrence. However, a thorough general examination should be made to rule out any infection which may be the cause of the elevation of temperature. The temperature in cases of tuberculosis frequently shows a rhythmic variation during the menstrual cycle.

EXOSTOSES OF HEEL FOLLOWING GONORRHEAL ARTHRITIS

To the Editor:—I have had under my care for five months a man about 25 years of age, giving a history of having had gonorrhea one year ago. This was followed by arthritis, which settled in his heels. Diagnosis of exostoses of the heel was made, and operation performed, but he did not obtain any relief. Three months later he came to me. Roentgen examination at this time showed large exostoses of both heels. Operation was advised, and the exostoses were removed. He had relief for only a short while. The pain continued, and roentgenograms, taken June 8, 1931, revealed a slight clouding around the lower end of the os calcis; roentgenograms, July 7, revealed a large growth on the heel bone. Could you suggest a treatment that would prevent the growth of these exostoses if they should be removed again?

L. M. Sutter, M.D., Orlando, Fla.

Answer.—It is evident that this man had, in addition to his exostoses of the calcanei, a generalized arthritis. The toxemia has not been eradicated from his system. In an article on calcaneal spurs (*Arch. Surg.* **12**:117 [Jan., part 1] 1926) Philip Lewin has shown that it is important not to operate until the infecting agent has been thoroughly eradicated, or there will be recurrence.

The patient should be put to bed and his feet treated locally with some anodyne lotion, fomentations and physical therapy, including radiant heat, massage and diathermy, while a thorough search is made for foci of infection, which should be eradicated.

It is probable that there is a residual seminal vesiculitis, which should be treated by a competent urologist. This may involve injection or vesiculectomy. The use of vaccines, such as those of Burbank or Crowe, would be in order.

The treatment of the patient as well as his local condition must be emphasized. In many cases the operative removal serves to stimulate osteogenesis. The proper treatment by means of resilient support, tilting of the heel of the shoe, longitudinal arch exercises and contrast sprays will do more good toward the relief of the symptoms than any operation at this time.

KELOIDS FOLLOWING FACIAL TREATMENT BY "BEAUTY OPERATOR"

To the Editor:—I have a woman patient, aged 50, who had some "facial treatments" for the removal of wrinkles about eight months ago by a beauty operator. The "treatment" consisted of the application of some sort of plasters to the face, something which produced a severe inflammatory reaction. The patient now has reddened keloids on both cheeks and chin and a moderate ectropion of the lower eyelids. The keloid scars on her cheeks are about 4 inches long by a half to three-fourths inch wide and of a reddened bluish color. Please advise what I can do to help her. I thought I would give her iodides, gentle massage to the face with ointment and almond oil and cod liver oil, and possibly give the face a coat of tan with the ultraviolet lamp. Please omit name.

M.D., Illinois.

Answer.—It may be that, when the inflammation from the treatment which this patient has had has entirely subsided and the skin has become soft instead of leathery as it now probably is, there will be a considerable spontaneous improvement and that ectropion will disappear. Until this occurs the best thing to do for the face is to use bland applications in order to hasten the disappearance. For this purpose wet dressings several hours a day should be applied. One of the best is solution of aluminum subacetate, N. F., 1 ounce, and water to make a pint. Ointment of rose water or petrolatum as an ointment applied once or twice a day is also soothing but will not do the keloids any good. Massage, ultraviolet irradiation, iodides and treatment of that sort do no good. The only things that cause absorption of keloids are x-rays or radium rays. For practical purposes x-rays are most useful in treating keloids. Masks should be made which have openings corresponding to the scars and which protect all the other skin. Then broken doses of x-rays may be given and kept short of an actual erythema, say one fourth of an erythematic dose once a week. This should be repeated for several weeks but kept short of what the operator's experience with his apparatus tells him will produce an erythema. Under x-rays in this way most keloids can be flattened down. Young keloids are more responsive to the treatment than old ones.

ALLERGIC DERMATITIS

To the Editor:—A woman, aged 55, 5 feet 1 inch (155 cm.) in height, weighing 117 pounds (53 Kg.), a housewife, had chronic otitis media, with rupture of both ear drums, a purulent discharge at recurrent intervals, frontal sinus infection for several years with more or less headache, and endocrine imbalance with marked hypothyroidism. She received appropriate ear treatment three times a week, together with 1 grain (0 065 Gm.) of thyroid daily. Her improvement was remarkable through March, April and the first half of May. About the first of May I advised her to drink largely of milk, which she did, using 2 quarts (liters) daily in addition to other food. May 26, she developed marked eczema of the neck which, after a few days, grew better and almost disappeared. June 8, eczema returned with marked exacerbation, giving a decided appearance of erysipelas. The entire face, chest, front and back and both arms are covered and swollen. She has never had any previous attack of this nature, is not subject to hay-fever, has not changed her diet other than an increase in the use of milk, and has not changed her habits of life or her home surroundings in any wise. There also was no change of any sort in her medicine or treatment that could cause it. This case, which I consider a case of allergic reaction, is a refractory one and so far I have not been able to give much relief. There is but little itching, scarcely no rise in temperature, and almost no ill feeling of any sort other than the annoyance of the unfortunate condition. Could you give me any suggestions as to the cause or treatment of this disorder or references to literature?

George A. Hare, M.D., Fresno, Calif.

Answer.—It is possible that the large intake of milk could produce the eczema and it would certainly be wise to exclude all milk for a time to see whether the condition will improve; but the onset is rather recent and the age is rather late for the development of true allergy.

Perhaps the dermatitis may depend on poison ivy or even on certain other plants harmless to normal persons. Chobot is working with the ether soluble fractions of various common pollens which he finds are often responsible for seasonal dermatitis.

The following references may be consulted:

Rowe, A. H.: Food Allergy, Philadelphia, Lea & Febiger, 1931.

Moore, M. B.; Cromwell, H. W., and Moore, E. E.: Studies on Pollen and Pollen Extracts: IV. The Allergic Active Constituent in Pollen Oil, *J. Allergy* **2**: 6 (Nov.) 1930.

PSYLLIUM SEEDS AND FERMENTATION

To the Editor:—I have been prescribing psyllium seeds with fairly good results. Recently a French concern sent out circulars advertising a new product for constipation called "Coreine." In the literature they claim very emphatically that among other bulk formers psyllium is distinctly harmful, because it produces fermentation in the intestine, and hence "colitis," and may even produce intestinal obstruction. Knowing how unwarranted some claims are, I would like to get your opinion on the following: If psyllium seed tends to produce some fermentation, is this not distinctly advantageous in stimulating an aciduric flora in a toxic intestine, in this manner helping to overcome putrefactive processes?

Emanuel W. Lipschutz, M.D., Brooklyn.

Answer.—The amount of fermentation that can be induced by the small quantity of psyllium seed that is taken therapeutically is insignificant as compared with the amount furnished by the fermentable material in the diet.

SOLVENT FOR ELATERIUM

To the Editor:—Will you kindly tell me how to put up the following formula:

Elaterium, powdered	1/10 grain
Hydrastinine	½ grain
Resorcinol	1 grain
Oil of thuja	2 minims
Ichthyol	8 minims

I find it impossible to find a solvent for the elaterium. Kindly omit name.

M.D., New Hampshire.

Answer.—Elaterium is a mixture of substances of different solubilities. It yields half of its weight to alcohol, and in this alcohol-soluble portion resides its activity. The obvious way of dispensing this material would be to mix the solid ingredients first and then add the liquids and enough powdered glycyrrhiza to form a mass that can be put into gelatin capsules.

EFFECT OF INFRA-RED RAYS ON MENSTRUATION

To the Editor:—What is the effect of infra-red rays on the menstrual function? I have three patients, one married with children, who has had the gallbladder and appendix removed and has been suffering for some time from chronic colitis. I used the lamp for the colitis with good results, but she has stopped menstruating. Before using the lamp, she menstruated every two weeks. The other married patient has been operated on for appendicitis, but, as she was not getting relief, her ureters were catheterized, and a stricture was found on the right side. Before that I used the rays with no benefit. She also had been menstruating every two weeks but has not since using the rays. The third patient, a young unmarried woman, has also been operated on for appendicitis but has spells of vomiting which last for two or more weeks. The first application of the rays stopped the vomiting but she has not menstruated since the first application. There does not seem to be any ill effect from the cessation of menstruation. Please omit name.

M.D., Maryland.

Answer.—Infra-red radiation is not known to have any direct effect on the ovaries or on menstrual function. The main effect of such rays on the tissues takes the form of heat, which is rapidly circulated through the blood and thus dissipated. Therefore, any ordinary therapeutic source of infra-red radiation could hardly be expected to raise the temperature of the ovaries sufficiently to affect function.

In the three cases mentioned, the information furnished is not sufficient to explain the cessation of menstrual function. This may be an indirect result of the operation. It could hardly be attributed to exposure to infra-red radiation, but more detailed information might give a clue to the factors involved.

NEURITIS IN DIABETIC PATIENTS

To the Editor:—I have several diabetic patients suffering with neuritis in the lower extremities. One patient in particular has had diabetes for twenty-six years, a slight albuminuria for the last six years, is sugar-free with blood sugar within the normal limit, and enjoys good health with the exception of severe pain in the lower extremities, especially in the afternoons and early night. Kindly give best treatment.

Fletcher A. Smith, M.D., Elberton, Ga.

Answer.—Pain in the legs in diabetes when the urine and blood sugar values are normal may be due in part to arteriosclerosis and deficient blood supply. If, however, pulsations are present in the dorsalis pedis, posterior tibial and popliteal arteries, and the feet are warm to the touch, this factor need not be considered of great importance in treatment.

Usually the diet should contain approximately 150 Gm. of carbohydrate, protein and fat sufficient to provide about 30 calories per kilogram of body weight. The use of foods rich in vitamins seems helpful and liver twice a week, cod liver oil and a yeast preparation such as Mead's Powdered Brewer's Yeast (New and Nonofficial Remedies, The Journal, May 2, 1931, p. 1477), are advised. Iron should be given if any anemia is present. Gentle massage and heat, especially in the form of warm baths at night, are helpful. Physical therapy and especially the use of a back support would be indicated if hypertrophic arthritis of the spine is a possible factor. Should the neuritis be of such severity as to produce paralysis (Root, H. F., and Rogers, M. H.: Diabetic Neuritis with Paralysis, *New England J. M.* **202**: 1049 [May 29] 1930), orthopedic treatment might be necessary for the relief of toe drop or muscle contractures.

SURVIVAL OF MOSQUITOES INFECTED WITH MALARIA

To the Editor:—If a mosquito bites an individual with malarial fever this summer and obtains malarial organisms in its system, can it live through the winter and transmit that malaria to an individual next summer? In other words, is malarial fever carried through the winter by the malaria mosquito? This brings up the question of whether malaria mosquitoes live through the winter or are propagated by eggs that remain quiescent during the winter. Please give your authority.

William Martin Cason, M.D., Sandersville, Ga.

Answer.—Recent research indicates that once a mosquito has become infected and has infective sporozoites in its salivary glands it can survive long periods and be infective with a rise of temperature (James, S. P., and Shute, P. G.: Report of the First Results of Laboratory Work on Malaria in England, League of Nations, Health Organization, Malaria Commission, 1926). When mosquitoes have become infected but the parasites have not reached the sporozoite stage, for example, have progressed only to the oocyst stage, some work indicates that the parasites are not capable of completing their development with a rise of temperature (Boyd, M. F.: An Introduction to Malariology, Cambridge, 1930). Therefore, if a mosquito has become infected one summer and has sporozoites in its salivary glands, it is probably possible for it to transmit the infection the next spring. In spite of this, all evidence indicates that for the most part malaria is carried over the winter in human beings rather than in mosquitoes.

In this country south of the thirty-second parallel mosquitoes can develop throughout the winter. Where there are only short freezing spells, various stages can survive. As a whole, however, where winters are severe it is the adult female that hibernates (Boyd).

TUBERCULOUS ORCHITIS

To the Editor:—Please advise me as to the following patient: E., a man, aged 27, had one testicle removed one year ago on account of gross destruction due to tuberculosis. Three months ago he had the epididymis of the remaining testicle removed because of tuberculosis. The remaining testicle now shows considerable enlargement and nodular growth where the epididymis was removed. The lymphatic glands draining this area are enlarged and can be palpated through the abdominal wall. The patient has been confined to his bed since the last operation three months ago. He has increased pulse but no elevation of temperature. His physical condition is fair but he has no inclination to get up and about. Should the diseased testicle be removed or should it be left, possibly to furnish some glandular secretion? Please omit name and address.

M.D., Tennessee.

Answer.—Extensive surgical operations in instances of tuberculosis of the epididymis as a rule are not especially successful. They are apt to incite spreading of the process. Surgical intervention should be confined to draining of abscess cavities and removal of caseous masses and necrotic skin flaps. The method of choice in tuberculous epididymitis is the administration of mild roentgen treatments supported by the usual general regimen indicated in tuberculous conditions. The resulting functional depression of the intermediate testicular cells is of a temporary character only and in this way the endocrine function of the testicular cells may be preserved. The irradiation, of course, should include the enlarged glands.

DEVICES TO INTENSIFY SOUNDS THROUGH STETHOSCOPES

To the Editor:—I have a slight defect in hearing and should like to know whether you can suggest any kind of stethoscope that would aid me in making heart and lung examinations. Please omit name.

M.D., Oklahoma.

Answer.—There are various devices which aim to intensify the chest sounds through a stethoscope. It might be advisable for any one who finds himself in need of one of these devices, because of a defect in hearing, to take the matter up with an instrument firm and try out for himself the device that suits his particular case. Pollard's high tension stethoscope is used a good deal, as is also Bowles' diaphragm stethoscope. Recently efforts have been made to develop an electrical stethoscope, but whether these electrical devices have any advantage over the ones mentioned is yet to be demonstrated.

SKIN LESIONS DURING MENSTRUATION

To the Editor:—A woman, aged 30, unmarried, has always had painful menstruation. Apart from childhood diseases and furunculosis six years ago, which responded to vaccine treatment, her past history is negative. For a year she has been developing a patchlike eruption on the tip or margin of the tongue. This lesion appears on the day previous to or on the day of the onset of the menses, following this rule rigidly even when the menses should be retarded or appear one week before they are expected. Irregularity of the menses has occurred only during the past few months. The patches disappear entirely at cessation of the menses. A small red patch makes its appearance at or near the tip of the tongue, sometimes at the margin, spreading rapidly in either direction until it occupies the margin, tip and lower surface of the anterior half of the tongue. At the onset the lesion is rather round, gradually becoming ovoid. It is shallow with a bright red surface; there is no elevation or infiltration at the margin of the ulcer-like "sore." As the menstruation nears its end, the lesion gradually heals from the center. A 10 per cent solution of silver nitrate, if applied early, has the effect of checking further spreading and hastening healing. There is no elevation of temperature; the patient complains only of some weakness during the menstrual period. There is no clinical evidence of any blood derangement. Dentibuccal ulcer can be excluded, as care was taken to cooperate with the patient's dentist. Tonic medication, such as iron, cod liver oil and calcium, and antiacidotic measures, had no effect whatever. I should like suggestions as to diagnosis and more than just symptomatic treatment. Please omit name.

M.D., New York.

Answer.—Certain lesions of the skin and mucous membrane associated with the menstruation occur not infrequently. The most frequent skin manifestations are herpes, acne, urticaria, various erythemas and pigmentation of the skin, especially of the eyelids. The lesion on the tongue in the case cited may be herpes. This condition usually involves the external genitalia, the face, the lips, the thighs and the buttocks, but it may involve the mucous membranes. At least two cases have been reported in which an herpetic eruption occurred on the cornea during menstrual periods. Some women have herpes, especially the genital type, during every menstrual period, whereas others have it for a limited time only. In a series of 877 cases of genital herpes, Bergh found that 73.4 per cent were of menstrual origin. This disorder is almost unknown in young girls who have not yet begun to menstruate.

The most likely cause of the association of the tongue lesion and the menstrual cycle in the case cited is some aberration in one or more glands of internal secretion. No specific treatment can be recommended. There is no harm in trying the administration of ovarian extract and anterior lobe of the pituitary. Niedermeyer reported a case of corneal herpes which occurred at the menses and was associated with disturbances in vision. He obtained a cure by giving injections of ovarian extract.

TREATMENT OF ANAL PRURITUS

To the Editor:—Please advise me how to treat a case of itching piles in a woman, aged about 50, who gives an almost normal physical examination except for three small external and a few internal hemorrhoids. These do not bleed or cause any pain, but since she took several colonic irrigations and enemas she has suffered intensely from rectal itching. Local applications and ointments have not given relief. There is no leukorrhea that might be causing irritation. Please omit name.

M.D., North Carolina.

Answer.—There are so many causes for anal pruritus and the treatment varies so greatly, depending on rectal, anal or cutaneous disorders, that it is difficult to suggest treatment without study of the individual case. In this case, undoubtedly some surgical intervention is necessary before the infection of the skin will clear up with treatment of any kind. The patient should use no dry, detergent paper. The anal region should be bathed with hot or cold water, with absorbent cotton only, with no rubbing or scratching, after every stool and on retiring. The part should be dried without rubbing, and then zinc stearate powder applied if the skin is moist. If dry, a soothing ointment such as zinc oxide should be applied. If these do not relieve, two or three applications of a saturated solution of potassium permanganate might be tried at intervals of one week, dry, and then a mild salicylic acid unguent. The patient must not rub or scratch. There is no specific for this trouble.

TREATMENT OF MENOPAUSAL SYMPTOMS

To the Editor:—I have a patient who is evidently undergoing the menopause, characterized by flashes of heat and cold, marked nervous irritability, and the absence of menstruation for about two years. The basal metabolism rate, urine and blood pressure are normal. The general health, outside of the symptoms of the menopause, is very good. She has been taking ovarian extract and sedatives by the mouth for about one year, but there is no improvement and when the flashes of heat occur, which take place several times a day, she has profuse perspiration and increased irritability. Is there anything that you could suggest in this case? If reply is published, please omit name.

M.D., California.

Answer.—It is frequently impossible to bring about a cessation of troublesome menopausal symptoms, especially the vasomotor phenomena, by any known therapeutic aids. Desiccated ovarian preparations given by mouth are considered ineffective by the Council on Pharmacy and Chemistry (The Journal, June 21, 1930, p. 1997). Even the hypodermic administration of ovarian extract is far from being a specific for menopausal disturbances, if, indeed, any effect is produced. Small doses of belladonna are sometimes helpful for the hot flashes and profuse perspiration. Sedatives such as the bromides and phenobarbital should also be given. Attention should be directed toward building up the patient's general condition. This includes proper diet, sufficient rest and sleep, care of the bowels and, most important, impressing the patient with the harmfulness of worry and overanxiety.

TREMOR OF THE HANDS

To the Editor:—A man, aged 39, shows no physical defect in any way and has no history of venereal disease or of alcoholism, but his hands shake and tremble, especially if he extends his hands outward. This condition is not constant. There is no history of tuberculosis, cancer or insanity in his family. Could this be a beginning paralysis agitans?

D. E. Little, M.D., Eufaula, Okla.

Answer.—This might possibly be paralysis agitans, although in that disease the tremor usually occurs with the hands at rest. A tremor, existing for a long time as the only symptom and aggravated by any voluntary movement, is often of the kind known as "essential" or "hereditary" tremor. In this case, history of other cases in the family is usually obtainable.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: Written examination for Group III candidates to be held in eighteen cities in the United States and Canada, Oct. 31. *Clinical examination for all candidates.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

Arkansas: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

California: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Connecticut: *Basic Science.* New Haven, Oct. 10. Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Regular.* Hartford, Nov. 10-11. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Georgia: Atlanta, Oct. 13-14. Sec., Dr. B. T. Wise, Americus.

Hawaii: Honolulu, Oct. 12-15. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

Illinois: Chicago, Oct. 13-15. Supt., Mr. Paul B. Johnson, Springfield.

Iowa: Des Moines, Oct. 20-22. Dir., Mr. H. W. Grefe, Capitol Bldg., Des Moines.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston

Michigan: Lansing, Oct. 13-15. Sec., Dr. F. C. Warnshuis, 1010 Maccabee Bldg., Detroit.

Minnesota: Minneapolis, Oct. 20-22. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

Nevada: Carson City, Nov. 2-4. Sec., Dr. Edward E. Hamer, Carson City.

New Jersey: Trenton, Oct. 20-21. Sec., Dr. James J. McGuire, 1101 Trenton Trust Bldg., Trenton.

New Mexico Santa Fe. Oct. 12-13. Sec, Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

South Carolina: Columbia, Nov. 10. Sec, Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

West Virginia: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

Wisconsin: *Reciprocity.* Milwaukee, Oct. 21. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

Wyoming June Report

Dr. W. H. Hassed, secretary, Wyoming State Board of Medical Examiners, reports 6 candidates licensed by reciprocity with other states at a meeting held at Cheyenne, June 2, 1931. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery....	(1911)	Montana
University of Kansas School of Medicine....	(1930)	Kansas
University of Michigan Medical School..	(1928)	Michigan
St. Louis University School of Medicine............	(1928)	California
University of Nebraska College of Medicine.........	(1925)	Nebraska
Osteopath*		Missouri

* Licensed to practice osteopathy and surgery.

Louisiana June Report

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written and practical examination held at New Orleans, June 10-12, 1931. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixty-eight candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Northwestern University Medical School..............	(1931)*	88.3
University of Illinois College of Medicine............	(1931)	86 6
Tulane University of Louisiana School of Medicine....	(1930)	89.9, (1931) 82.4, 84.3, 84.6, 84.8, 84.9, 85.2, 85.6, 85.6, 85.7, 86, 86.4, 86.7, 86.8, 87.1, 87.2, 87.3, 87.3, 87.4, 87.5, 87.7, 87.8, 87.8, 88, 88, 88.1, 88.1, 88.1, 88.2, 88.2, 88.2, 88.3, 88.3, 88.4, 88.5, 88.6, 88.6, 88.7, 88.7, 88.8, 88.9, 89, 89.1, 89.2, 89.3, 89.3, 89.4, 89.5, 89.5, 90.2, 90.6, 90.6, 90.7, 90.8, 90.8, 91, 91, 91.5
Johns Hopkins University School of Medicine........	(1928)	89.1
University of Nebraska College of Medicine.....	(1930)	87.5
Meharry Medical College..........................	(1917)	89
Meharry Medical Department of Walden University....	(1914)	82.1
Memphis Hospital Medical College..................	(1912)	69.5†
University of Tennessee College of Med...	(1929) 88.6, (1930)	87.6
University of Virginia Department of Medicine........	(1930)	89.3

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of		Georgia
Jefferson Medical College of		Penna.
University of Tennessee Colle		Mississippi
University of Texas School of		Texas

* This applicant received his M.B. degree and will receive his M.D. degree on completion of one year's internship in a hospital.

† Credit given for over fifteen years of practice made his average passing.

Book Notices

Hypertension and Nephritis. By Arthur M. Fishberg, M.D., *Associate Physician to Beth Israel Hospital, New York City.* Second edition. Cloth. Price, $6.50. Pp. 619, with 39 illustrations. Philadelphia: Lea & Febiger, 1931.

In this edition the author has rewritten several sections and added to others. He uses the term hypertensive retinopathy instead of albuminuric retinitis, although he suggested this change in the former edition, mentions the work of Larson on the papilla with the Gullstrand ophthalmoscope, describes the signs of retinal arteriosclerosis, and discusses the occurrence of choked disk due to edema of the brain. The work of Poulton and Ryffil on the increase of hydrogen ion concentration in uremia and a study of acid base equilibrium is mentioned. He still feels that the simple specific gravity test for renal function is the best and doubts whether the urea clearance test or the determination of the Addis ratio are superior to it. In the chapter on edema appear the references to Landis's method of testing for capillary pressure, the methods of determination of total and individual protein fraction in the plasma, and some work on the colloid properties of albumin. Allergy in relation to glomerulonephritis, while just mentioned in the first edition, is here discussed at length. The recent work of Hering on the carotid sinus and the group of nerves called blood pressure restrainers is covered efficiently. The work of Hoover and Wassermann in relation to the effect of a reduced blood supply to the brain as a cause of cardiac asthma has been added to the chapter on cardiac failure in hypertension. Paroxysmal hypertension as a result of suprarenal ganglioma and renal osteodystrophy are two new additions. Some sections have been rearranged, many pages have been added, and some new illustrations appear in this edition. The praise given the former edition holds for the present one. The changes and additions have made it still more valuable.

Handbuch der inneren Sekretion: Eine umfassende Darstellung der Anatomie, Physiologie und Pathologie der endokrinen Drusen. Herausgegeben von Dr. Max Hirsch. Band II, Lieferung 9. Paper. Price, 28 marks. Pp. 1745-2016, with 47 illustrations. Leipzig: Curt Kabitzsch, 1931.

The last twenty-nine pages of this section of the larger work contains a chapter on the influence of the endocrines on human growth and body form by Dr. H. Rautmann in Brunswick. This chapter deals in an elementary way with the influence of the anterior hypophysis, the thyroids and the gonads in body growth in man. The majority of this chapter has already been presented in the sections on these specific endocrine glands. But by far the most important part of this volume is the chapter on senescence and rejuvenation, by Dr. B. Romeis in Munich. This chapter makes a monograph of 250 pages with 47 illustrations and reviews in critical detail the experimental and clinical data of the various attempts at general body and sex function rejuvenation in old animals and old persons. The presentation is logical, lucid and objective. The analysis appears everywhere to be fair. The author does not throw out every possibility of action solely on account of the enthusiasm and lack of judgment, if not downright charlatanism, of many workers in this field. The results of ovarian and testis transplants, roentgen action on ovaries and testes, and attempts at restoring testes and ovarian functions in the aged is adequately presented. The author concludes, in summarizing the entire literature, that the early hopes and expectations from rejuvenation measures on endocrine basis have come to grief, in the main; that rejuvenation cannot as yet be spoken of in the strict sense of this word as a possibility in mammals.

Experiments on the Etiology of the Influenza Epidemic of 1928-1929. By I. S. Falk, R. W. Harrison, R. A. McKinney and G. W. Stuppy. American Journal of Hygiene, Monographic Series, No. 11. Paper. Pp. 192, with 66 illustrations. Baltimore: American Journal of Hygiene, 1931.

This is another attempt to establish a possible relationship between a particular group of bacteria and influenza. The authors' conclusions are recorded in thirty-eight items in the summary. In brief, it is asserted that material transferred from human cases of "influenza" has produced an influenza-like disease in monkeys; that pure cultures of Pfeiffer's bacillus and *B. pneumosintes* will not produce such a condition; that an acute infection of the upper respiratory tract resembling influenza has been induced by the use of cultures of a pleomorphic "hemophilic" streptococcus isolated from the blood of a human case of "influenza"; that "rough" colonies of this organism are more virulent than "smooth" colonies; and, finally, that the pleomorphic streptococci studied were "not improbably . . . etiologically related to the influenza outbreak in Chicago in the winter of 1928-1929." Proper evaluation of the experimental data is difficult, partly because of the enormous amount of material and partly on account of the somewhat ponderous method of presentation. The experimental animal work was done largely with one culture isolated from the blood stream of one person who may have had influenza. The clinical records are not entirely clear on this point. The micro-organism is described as a pleomorphic "hemophilic" streptococcus producing a green zone on blood agar and having certain biochemical characteristics. The term "hemophilic" is unfortunate since lack of ability to grow on "plain agar plates" is hardly a proper criterion of hemophilic characteristics. Those who have worked with so-called green producing streptococci are well aware of the difficulties involved in grouping strains of these organisms on morphologic and biochemical grounds. One is reluctant to believe that the authors have encountered a new "group."

The bacteriologic work reported is unconvincing. Pfeiffer's bacilli were never encountered. This is, perhaps, not so surprising as the authors' failure even to mention hemolytic streptococci, which are so frequently present in infections of the respiratory tract, particularly during the winter months. The authors state that the selection of a culture for study was made on the basis of its source, "chiefly with respect to its estimated virus-containing potential," an expression which might have been further elucidated in place of some of the quite unnecessary detailed tabulations of biochemical data. The authors admit that the data obtained from agglutination tests may be open to question. It is asserted that there is a progressive increase in agglutinin titer against one of the two test organisms, with increased severity of colds or influenza or both. If the group (recorded in a previous table) the members of which confessed to neither colds nor influenza had been included, this statement could hardly be made.

Twenty-six series of animal experiments were made, chiefly on monkeys. Material for inoculation was obtained from the throat or blood of patients with a clinical diagnosis of influenza, from infected monkeys and from a variety of culture material. The elimination of Pfeiffer's bacillus and *B. pneumosintes* as possible causes of influenza on the basis of the data presented is unwarranted. The criteria used for production of "influenza-like" disease in monkeys included apparent illness, fever and prostration, infection of the respiratory tract, sometimes confirmed by necropsy, and an initial leukocytosis followed by a leukopenia with relative increase in lymphocytes. There is an unfortunate dearth of suitable controls, particularly in the attempts to produce infection with material taken directly from influenza patients. While it may have been impossible to carry on such control experiments at the time of the influenza outbreak, there is no excuse for not repeating these tests at a time when apparently normal persons were available.

There seems to be no doubt that some disease of the upper respiratory tract followed introduction of material from various sources. Whether an "influenza-like" disease was produced may be seriously questioned. Much is made of the blood picture. Unfortunately, two control monkeys, for which exact data are given, showed the same initial leukocytosis as the "infected" animals. Furthermore, since control animals showed a variation in total white blood cell count over the period of observation between 10,000 and 30,000, some difficulty might have been experienced in interpreting the counts of the inoculated ones. In most instances the exact blood cell counts are not given but merely the authors' interpretation. The use of animals a second time is not good experimentation, although it may be economical.

As a study of the cultural characteristics of a number of strains of pleomorphic streptococci and the pathogenicity of two of them, this work has merit; but as a serious contribution to the etiology of influenza, it is utterly unconvincing.

Röntgenatlas der Lungenerkrankungen: Ein Leitfaden für Ärzte. Von Dr. W. Brednow, Privatdozent für innere Medizin und Röntgenologie an der Universitat Göttingen, und Dr. E. Hofmann. Paper. Price, 12 marks. Pp. 166, with 86 illustrations. Berlin: Urban & Schwarzenberg, 1931.

The different diseases of the lungs are fully presented by means of a complete collection of roentgenograms. An appended analysis of these pictures gives the reader a clear understanding of the details and renders him capable of making a correct diagnosis by himself. It may be agreed that roentgenology reaches its acme when the closest cooperation is exercised with the clinician. Only when the clinical picture is considered will the roentgen examination prove beneficial to the patient. On the other hand, the roentgen diagnosis should be independent as far as possible, in the same way as histologic or other laboratory work. If these self evident facts are remembered, the incorrect diagnosis of roentgenograms will be avoided. This will often spare the patient harmful results. The authors present first the appearance of the normal and then of the tuberculous and the nontuberculous lung. Beginning with incipient tuberculosis they continue with the valuable and well collected forms of the different early infiltrations. The inflammatory diseases of the lungs, tumors and pleuritic disorders are excellently portrayed and described. The purpose of the book is a purely practical and didactic one, and for the rich contents, its careful editing, excellent picture material and clear and complete description it deserves a thorough acquaintance among practicing physicians as a roentgenologic adviser.

General Chemistry. By H. I. Schlesinger, Professor of Chemistry, the University of Chicago. Second edition. Fabrikoid. Price, $4. Pp. 847, with 48 illustrations. New York: Longmans, Green & Company, 1930.

Textbooks on general chemistry whose main theme is to describe specific reactions and substances should be given some descriptive name, such as "A Compendium of Compounds." In contradistinction, modern works on general chemistry give the general principles underlying chemical reactions, using specific reactions and substances as examples, thus supplementing the knowledge of principles with a knowledge of chemical substances. This volume can be placed in the latter class. It is readable and logically arranged. Judging from the quiz outlines, the problems suggested, the references for collateral reading, the historical sections and a paragraph in the introduction and review entitled "Notes on the Method of Study," the author is a pedagogue true to the best traditions. One slight inaccuracy of medical interest is noted; in a chapter on carbon compounds appears a statement that a lack of vitamin A causes rickets. On the whole, the book is one of the milestones in textbooks on chemistry. It should be destined to do as much to advance the teaching and applications of the subject in America today as did its forerunners of a score of years ago from the same university, Smith's "College Chemistry" and Stieglitz's "Theory of Qualitative Analysis."

The Physical and Radiological Examination of the Lungs with Special Reference to Tuberculosis and Silicosis, Including a Chapter on Laryngeal Tuberculosis. By James Crocket, M.D., D.P.H., F.R.C.P.E., Lecturer on Tuberculosis, Glasgow University. Second edition. Cloth. Price, 16/- net. Pp. 296, with 151 illustrations. London: H. K. Lewis & Company, Ltd., 1931.

This compact volume covers the examination of the lungs by the usual physical and roentgen methods in a most satisfactory manner. The subject matter is concentrated, exhaustive, well written and profusely illustrated. In these days, in which there is a tendency to supplant the older methods of palpation, percussion and auscultation by fluoroscopy and roentgenograms, it is satisfying to note that the importance of the former is stressed while the value of the latter is fully recognized. Technical details concerning palpation, percussion and auscultation as presented should prove of interest and value not only to the student but also to the tried practitioner in this field, who has given the subject much thought and has had the opportunity of checking on his own observations through the process of trial and error. Many well chosen reproductions of roentgenograms of the chest, covering a wide range of pathology, are included. A careful examination of these and a study of the author's comments should prove of interest and value to any one interested in this field. The chapters on silicosis, bronchography and the examination of the larynx in pulmonary tuberculosis add greatly to the value of the work. In the glossary many terms loosely employed and the names of signs rarely used and readily forgotten are concisely defined. These should prove of value to the internist.

Quantitative Clinical Chemistry: Volume I: Interpretations. By John P. Peters, M D., M.A., Professor of Internal Medicine, Yale University School of Medicine, and Donald D. Van Slyke, Ph.D., Sc.D. Cloth. Price, $12. Pp. 1264, with 124 illustrations. Baltimore: Williams & Wilkins Company, 1931.

One of the more pleasing aspects of the state of science in this country is the appearance of monographs on broad fields of science by distinguished reviewers. For a long time German writers have been especially adept in this field of compilation. Many of the earlier advances in many fields were recorded in that language. In the past decade, however, the scientific literature in the English language has been mounting at an increasing rate. The appearance of this volume helps to summarize for English readers the vast amount of information in the related fields of medicine and biochemistry in a pleasingly critical manner and sets the standard for books of this class. It is the first in a series of two on quantitative clinical chemistry. It is the work of two prominent students in closely related fields and is worthy of their reputations. The large amount of information found in the rapidly accumulating pages of biochemistry has been summarized. The information is presented in a form useful for physicians, biochemists, teachers, chemists, home economics workers and others interested in the application of the quantitative data of the chemistry of biology. The whole field is treated thoroughly and broadly. Each of the elements, compounds or groups entering in these related fields is traced historically from its first appearance as an important factor and the chemistry and physiology is discussed quite thoroughly. There are chapters on total metabolism; carbohydrates; lipoids; nonprotein nitrogen and nitrogen metabolism; urea; ammonia; amino-acids; uric acid; creatine and creatinine; total organic acids, lactic acid and ketones; phenols; hemoglobin; proteins of the blood plasma, urine and other body fluids; volume of the circulating blood; total base, sodium and potassium; calcium; magnesium; carbonic acid and acid-base balance; chlorides; phosphorus, and sulphur. The bibliography carries approximately 4,000 references, which covers almost all the important work on the subject. An excellent subject index is included. No doubt, in a work of more than 1,200 pages, errors may have crept in; but the errors, either of fact or of interpretation, have been kept to a minimum. It is hoped that, in succeeding revisions of the work, these errors will have been brought to the attention of the author. Of the 4,000 references there can be no doubt that some will prove to be erroneous or misleading. The authors point out that some of the statements must be accepted with caution, and where further investigation is desirable, it is pointed out. It is regrettable to note the absence of chapters on the chemistry of the body fluids or tissues, which would serve to orient the reader. On the other hand, it might be questioned whether such material belongs in a book on the clinical application of biochemistry. The oxidation of fat in the body has been the subject of many reports, and because of its importance to the clinical application of acidosis, if treated at all, it should be treated in more detail. This monograph will take its place as the leading reference work for a summary of the information that has been published on the subject. It is written in an interesting and clear style. Of especial interest to physicians whose biochemical training has been limited are several introductory paragraphs to physical chemistry notations. The appearance of the companion volume, on laboratory methods, is awaited with interest.

Encephalitis post Vaccinationem: Experimentelle Studie. Von Dr. J. R. F. Rassers, Konservator am bakteriologisch-hygieneischen Laboratorium der Reichs-Universität Leiden. Paper. Price, 360 florins. Pp. 92, with 30 illustrations. Leiden: S. C. Van Doesburgh; Leipzig: Johann Ambrosius Barth, 1931.

The burden of this monograph is to establish that postvaccinial encephalitis is due to the excessive use of sodium chloride in the diet. The author was led to consider the diet in seeking to explain that postvaccinial encephalitis is not nearly so frequent in the first year of life as later: The change in the diet at about the end of the first year undoubtedly may bring with it an increased consumption of sodium chloride. He then considered the relation of sodium chloride to the skin and found that in dogs sodium chloride crowds out calcium from the skin; further, that in dogs fed with food rich in sodium chloride the vaccine virus may give rise to severe cutaneous reactions as well as to symptoms and structural changes resembling those of postvaccinial encephalitis. But how explain the fact that postvaccinial encephalitis appears to be of recent origin? May it not be possible that the vaccinia virus is becoming more virulent as the result of an increase of sodium chloride in the fodder of calves? The author has been unable to make any experiments to test his second hypothesis and urges that experiments be made to determine the effect of sodium chloride in the feed of vaccinated calves on the virulence of the virus. In the meantime, until the results of such experiments may be obtained, he would urge that vaccine virus be propagated in calves whose skin contains calcium. The theoretical considerations, often rather finely spun, and the experiments referred to in the foregoing are presented clearly and interestingly. The book will interest students and investigators of postvaccinial encephalitis.

Accidental Injuries: The Medico-Legal Aspects of Workmen's Compensation and Public Liability. By Henry H. Kessler, A.B., M.D., F.A.C.S., Medical Director, New Jersey Rehabilitation Clinic. Cloth. Price, $10. Pp. 718, with 157 illustrations. Philadelphia: Lea & Febiger, 1931.

The author clearly states the purpose of this book in his preface as, primarily, the discussion of the medical questions which arise in the litigation of accident claims. The need for the volume is obvious when one reviews the existing textbooks. The foreword by Fred H. Albee is complimentary to the author and to the excellent manner in which this difficult field is covered. The background of the book is based on the personal examination of more than 63,000 cases by the New Jersey Compensation Bureau, supplemented by the findings of foreign experts after half a century of experience in the administration of compensation laws. Almost all medical men are more or less called on to decide accident litigation problems for their patients. This book determines the relations between injury and disease and the probable period of disability. The subject matter is developed in a clear manner and written with an easy style. The first chapters consider the historical background of compensation principles and then consider the medical aspects of the workmen's compensation laws. The remainder of the book takes up, methodically, injuries to different parts of the body by discussing the usual causes, physiology, the common pathologic findings and the phase of compensation adjustment. The chapter on traumatic neuroses deserves special comment and, more especially, the discussion of malingerers.

Handbuch der theoretischen und klinischen (allgemeinen und speziellen) Röntgenkunde. Herausgegeben von Guido Holzknecht. Band III: Röntgenuntersuchung und Strahlenbehandlung der Speiseröhre. Von Dr Josef Palugyay, Privatdozent für medizinische Röntgenologie, Universitatsklinik in Wien. Paper. Price, 56 marks. Pp. 391, with 224 illustrations. Vienna: Julius Springer, 1931.

This volume is the third of the well known "Handbook of Roentgenology" published by Holzknecht. The author speaks of this subject as the result of twelve years of intensive experience in this special field in the second surgical university clinic of Vienna. Following a brief historical chapter, the anatomy of the esophagus and the physiology of the act of swallowing are discussed. The technic of visualization of the esophagus is described with particular reference to the distal end, which is often difficult to demonstrate. The author resorts in some cases to horizontal and oblique positions in addition to the customary vertical position, which, of course, is the one furnishing most information. Schematic drawings serve to demonstrate the anatomic relation of the structures involved, with reference to optimal filming results. Throughout the entire volume there are found film reproductions visualizing the pathologic conditions discussed under the various headings. The author treats the subject with great thoroughness, and a better source of information would be difficult to find. Of unusual interest is a chapter on operative procedures on the esophagus with reference to the results of subsequent roentgen examinations. The final chapter is devoted to the various forms of therapy in malignant cases.

RECENT ADVANCES IN THE STUDY OF THE PSYCHONEUROSES. By Millais Culpin, M.D., F.R.C.S., Lecturer in Psychoneuroses at the London Hospital Medical College, and in Medico-Industrial Psychology at the London School of Hygiene and Tropical Medicine. Cloth. Price, $3.50. Pp. 348, with 4 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This book lives up to its title. It gives a lucid and clean-cut description of the recent theories regarding the diagnosis and treatment of the psychoneuroses. The author, evidently an ardent freudian, has restricted himself to this part of the presentation, wisely leaving the explanation of the psychology of Adler and Jung, and the discussion of the psychopathology of childhood, to his collaborators, A. R. Redfern, James C. Young and Emanuel Miller. The first part, written by Culpin, gives a summary of the work done by the freudians to date. This summary is excellent because it leads the supposedly ignorant reader step by step into the ways of psychologic thinking and deductions. The author's proposed classification of the neuroses is less lucid and does not correspond to the generally accepted ideas of the subject. He even proposes to discontinue the use of the term "neurasthenia" entirely, without offering a good substitute for this concept. Here he is probably propelled by his ultrafreudian attitude. Since the author is evidently more interested in hysteria, war neuroses, and occupational neuroses, than in obsessional anxiety states, his chapters on these diseases are by far the most complete. He devotes little space to methods of treatment by means of psychotherapy or psychoanalysis. It would have been interesting to read a brief summary of the technic employed in treatment. Perhaps this would have been more important than the rather lengthy discussion of telegraphers' cramp and miners' nystagmus. The first disease is on the wane because the Morse code is no longer being used, and the latter is a neurosis local to England. The chapter on Adler, by Redfern, gives a brief presentation of the views of this school. It is a clear and concise summary of the subject. The presentation of Jung's views, by Young, is less clear, but this is probably due to the inherent difficulty of describing Jung's theories. The description of the psychopathology of childhood, by Miller, is decidedly sketchy and the chapter on psychotherapeutic clinics by J. R. Reese could have been omitted entirely without lessening the value of the volume. All in all, this book can serve as an excellent introduction to modern psychoanalytic and psychotherapeutic concepts.

THE RATIONAL TREATMENT OF VARICOSE VEINS AND VARICOCELE, WITH NOTES ON THE APPLICATION OF THE OBLITERATIVE METHOD OF TREATMENT TO OTHER CONDITIONS. By W. Turner Warwick, M.A., M.B., F.R.C.S., Surgeon to Outpatients and Surgeon in Charge of the Rectal Department, the Middlesex Hospital. Cloth. Price, 5/-. Pp. 188, with 12 illustrations. London: Faber & Faber, Ltd., 1931.

The injection treatment of varicose veins is now widely practiced by the general practitioner, but the scope and limitations of this method and the reasons for the occasional failure and early recurrence have not been thoroughly understood. The intimate knowledge of the venous return has been greatly enhanced by the author's work on normal cadavers. While the incompetence of the saphenous valves and the valves of the perforating veins has been well known, the demonstration of valvular defects in the deep veins is an important contribution to the better understanding of certain types of this disease. It would seem from this work that tests should be devised not so much for patency but for valvular incompetence of the deep veins. The remaining part of the work is a concise presentation of the technic of injections, with some notes on the treatment of hemorrhoids, varicocele and cysts with endothelial lining. The consistent misspelling of Trendelenburg's name is the only disturbing point in this important contribution to the functional pathology of varicose veins.

Medicolegal

Wealth of Patient and Physicians' Fees

(Houda v. McDonald (Wash.), 294 P. 249)

For several years Mrs. McDonald had been seriously afflicted with goiter. She had had much treatment, including a surgical operation. In the fall of 1928 she consulted the plaintiff, Dr. Houda, and after several months' treatment was operated on by him, apparently with satisfactory results. Mrs. McDonald and her husband owned community property worth $1,600,000, for the most part income-producing property. Dr. Houda had no express agreement with either the patient or her husband as to what he would charge for his services. The husband died in July, 1929, and thereafter Dr. Houda presented to Mrs. McDonald, his patient, who had been qualified as executrix of her husband's estate, a bill for $15,000. In fixing his charge, he took into consideration the wealth of his patient and her husband, the importance of the service to her and the skill required in rendering that service. As executrix, Mrs. McDonald refused to approve the bill for the amount stated but did approve it for $1,000. Dr. Houda thereupon instituted suit to recover the entire amount claimed. In the superior court for Pierce County a jury returned a verdict in his favor for $3,500, and judgment was rendered accordingly. Mrs. McDonald thereupon appealed to the Supreme Court of Washington.

The decision of the Supreme Court turned on the admissibility of evidence as to the wealth of the patient and her husband, for the purpose of proving the value of Dr. Houda's service. Evidence as to the wealth of Mr. and Mrs. McDonald and the testimony of three physicians proffered as witnesses by Dr. Houda were admitted over the objection of counsel for Mrs. McDonald. On behalf of Dr. Houda, a physician testified that it was the general practice of physicians and surgeons in the community and in the state of Washington to take into consideration the financial status of patients in determining the charge to be made for professional services. A bill for a major operation, said this witness, would represent about 10 per cent of the annual income of the person liable for payment. The fee demanded in the present case, $15,000, he thought was just. Another physician testified that it was the custom of physicians to fix their charges on the basis of the incomes of their patients; with some physicians it was the practice to charge a month's income for major operations, and others charged 10 per cent of the yearly income for such operations. This witness professed to be fairly familiar with the general practice throughout the United States and so far as he knew it is the universal custom to take into consideration the wealth of the patient in fixing charges for a physician's service. He regarded the fee demanded in this case as reasonable and proper. A third physician, appearing on behalf of Dr. Houda, concurred substantially in the testimony of the two preceding witnesses. Two physicians offered as witnesses on behalf of Mrs. McDonald agreed that it was customary for physicians to take into consideration the financial ability of patients to pay, in fixing the charges to be made for professional services. One testified that for an ordinary goiter operation and the ordinary treatment that precedes and follows such an operation, a charge of from $500 to $1,000 to a man reputed to be a millionaire would represent a large fee. The other physician testifying on behalf of Mrs. McDonald was of the opinion that the ordinary charge for goiter operations in the community was from $150 up. He himself applied the 10 per cent basis of charges with respect to most major operations, up to a certain limit. For services rendered by Dr. Houda he considered $1,000 a good fee.

These five physicians, said the Supreme Court, agreed that the wealth and income of a patient is customarily considered as an element controlling in some measure the reasonable amount of compensation a physician is entitled to for services of the nature involved in the present case. In this particular case, however, there were several estimates of the reasonable value of the services rendered, ranging from $500 to $15,000.

There seems to be a lack of harmony in the decisions of the courts concerning the admissibility of evidence of the pecuniary circumstances of the person liable for compensation for medical and surgical services rendered. We are of the opinion, said the court, that the rule best supported by reason—in any event as applicable to this case—is that in some substantial measure the reasonable compensation of a physician is determinable by the ability of the patient or her husband to pay for the service. The contract for the service was made by the physician directly with the patient who was to benefit by his services, including a major operation, and it was shown by competent evidence that it is customary among physicians to charge for such service in some measure according to the ability of the patient to pay. If wealth and income of a patient are admissible facts to be proved in a controversy of this nature, then the evidence of the wealth of the patient and her husband and the testimony of physicians were admissible to be considered by the jury and manifestly support the verdict and judgment awarded to Dr. Houda for recovery in the sum of $3,500. Judgment of the court below was affirmed.

Interpretation of Roentgenograms by Chiropractor

(Ness v. Yeomans (N. D.), 234 N. W. 75)

The plaintiff fractured the ulna of his right arm. The defendant, a physician, was employed to treat the injury. In this action, the plaintiff alleged that the fracture was not properly reduced and that proper after-treatment was not given. The jury rendered a verdict for the plaintiff and, after the trial court had denied a motion for a new trial, the defendant appealed to the Supreme Court of North Dakota.

The defendant contended, among other things, that the trial court erred in permitting a chiropractor to testify with respect to certain roentgenograms which he, the chiropractor, had taken of the plaintiff's arm. The witness testified that he had had six years' experience in roentgenography. There was no error, said the Supreme Court, in permitting the witness to testify. The fact that he was a chiropractor was a mere incident, except so far as it showed his knowledge and study of human anatomy. The names, number and position of the bones in the human body are the same, whether one is a regular physician or a chiropractor. It is not the school which he follows but his knowledge, experience and special training which qualifies a witness to testify. A chiropractor may testify as to matters in which he is qualified to speak so long as he does not attempt to testify in regard to a school of treatment separate and distinct from his own. If the witness has studied human anatomy so as to acquire special knowledge, if he knows how to take roentgenograms so as to give correct representations, if he knows how to read and interpret them, then he is qualified to testify.

While the evidence seemed to show, said the court, that a perfect union had not resulted, all the expert witnesses testified that the union was a good one and that the treatment given by the defendant-physician was proper treatment. The stiffness of muscles and the loss of motion, about which the plaintiff complained, could not be attributed, in the opinion of the witnesses, to any negligent treatment given by the defendant, but to the plaintiff's failure to follow instructions as to exercise of the arm and fingers. The defendant used a fluoroscope in reducing the fracture, but the plaintiff contended that the defendant should have made a roentgenogram of the arm after the fracture had been reduced to determine whether the bones were in apposition. Had such an examination been made, contended the plaintiff, the fact that one portion of the broken bone projected past the other would have been detected and could have been remedied. Even if this were so, said the court, all the expert testimony in the case showed a good union and that correct practice was followed. The contention here made by the plaintiff involved a question of good practice and on this question the expert testimony controls.

The defendant is not responsible for the result of his treatment, said the court, unless the result is caused by his negligence. There was nothing shown in the case which was not consistent with good practice; neither was there anything in good practice which the defendant did not do. The burden of proof is on the plaintiff to show that the proper method was not employed, that the proper treatment was not given, and that the physician violated some of the rules of good practice, so that the result complained of necessarily came from such violation. This the plaintiff failed to do. The Supreme Court, therefore, reversed the order of the trial court denying a new trial and remanded the case.

Evidence: Expert Testimony Invading Province of Jury.—An expert witness may not testify that the insured's death resulted from wounds self-inflicted with suicidal intent. Whether or not the death is suicidal is the point at issue and is a question which the jury was impaneled to decide. The expert may testify concerning the depth, character and consequences of the cuts and wounds, and the manner in which they might have been inflicted. When he has so testified, the jury, not the witness, should say with what intent the wounds were inflicted.—*Johnston v. Order of United Commercial Travelers of America (Ark.), 33 S. W. (2d) 375.*

Hospitals: Liability of Charitable Institution for Unlawful Retention of Dead Body.—An Ohio statute provides that a person, association or company having unlawful possession of the body of a deceased person shall be liable in a sum not less than $500 nor more than $5,000 to the personal representative of the deceased. The fact that a hospital, said the court of appeals of Ohio, Hamilton County, is a charitable institution does not relieve it from liability for a violation of this statute.—*Howard v. Children's Hospital of The Protestant Episcopal Church (Ohio), 174 N. E. 166.*

Evidence: Expert Opinion Based on Hypothetical Questions Evaluated.—We cannot, said the Supreme Court of Oregon, give to expert testimony based on hypothetical questions the same weight we do to the direct and positive testimony of a physician who treated the testator. The attending physician had a great advantage over the expert. He saw the testator, examined and conversed with her. He had every opportunity of observing her and would have discovered her mental incapacity if she had been mentally unsound.—*Richards v. De Lin (Ore.), 294 P. 600.*

Evidence: Admissibility of Death Certificates.—A Kentucky statute declaring that a properly certified copy of a death certificate shall be prima facie evidence in all courts of the facts therein stated is valid. It is error for a court to refuse to permit such a certificate to be read to the jury.—*Massachusetts Mut. Life Ins. Co. v. Bush (Ky.), 33 S. W. (2d) 351.*

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, St. Louis, Nov. 4-6. Dr. Louis J. Mitchell, 29 E. Madison Street, Chicago, Secretary.

American College of Surgeons, New York and Brooklyn, October 12-16. Dr. Franklin H. Martin, 40 East Erie St., Chicago, Director-General.

American Congress of Physical Therapy, Omaha, October 5-8. Dr. F. L. Wahrer, 22 South Center Street, Marshalltown, Iowa, Secretary.

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Associated Anesthetists of the United States and Canada, New York, October 12-16. Dr. F. H. McMechan, 770 Westlake Road, Avon Lake, Ohio, Secretary.

Delaware, Medical Society of, Wilmington, October 13-14. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Kansas City Southwest Clinical Society, Kansas City, Mo., October 5-10. Dr. Joseph E. Welker, 906 Grand Avenue, Kansas City, Mo., Secretary.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Scranton, October 5-8. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Vermont State Medical Society, Rutland, October 8-9. Dr. William G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, October 6-8. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

48: 261-500 (July) 1931

Origin of Archinephric Duct of Vertebrates. T. H. Burlend, Cardiff, Wales.—p. 261.
Innervation of Thyroid Gland: II. Origin and Course of Thyroid Nerves in Dog. J. F. Nonidez, Cornell, N. Y.—p. 299.
Sensory Unmyelinated Fibers in Spinal Nerves. S. W. Ranson and Helen K. Davenport, Chicago.—p. 331.
Contribution to Development of Pericardium. R. Elliott, Columbus, Ohio.—p. 355.
*Observations on a Cyclic Variation in Capacity of Anterior Hypophysis to Induce Ovulation in Rabbit. J. M. Wolfe, Nashville, Tenn.—p. 391.
Prozymogen Granules ("Vacuome") of R. R. Bensley in Pseudotriton Pancreas, and Modern Neutral-Red Cytology. J. B. Gatenby, Dublin, Ireland.—p. 421.
Cervical Part of Gangliated Cord, with Especial Reference to Its Connections with Spinal Nerves and Certain Cerebral Nerves. S. A. Siwe, Lund, Sweden.—p. 479.

Ovulation in the Rabbit.—Wolfe removed the anterior hypophysis from sows killed in the various periods of the estrous cycle. A suspension of the fresh tissue in physiologic solution of sodium chloride was injected intravenously into sexually mature female rabbits, in an attempt to induce ovulation. The following results were obtained: 1. An amount of the suspension representing 1 mg. of fresh tissue induced ovulation in the rabbit, when the anterior lobe was taken from an animal whose ovaries contained follicles measuring 6 or 7 mm. in diameter and degenerate corpora lutea. 2. Ten milligrams of anterior lobe tissue was necessary to induce ovulation when the donors were in heat. 3. Forty milligrams of anterior lobe tissue was required to induce ovulation regularly when the ovaries of the donors contained active corpora lutea. 4. Anterior lobe tissue taken from pregnant sows had a great variation in its capacity to induce ovulation. Considered as a whole, the data indicate that the anterior lobe of the pregnant animal has a decreased capacity to induce ovulation when compared with glands taken from nonpregnant donors killed in the proestrous period. It is suggested that the anterior lobe of the hypophysis in pregnant sows may undergo a cyclic variation in its hormonic output similar to that which occurs in the nonpregnant sow.

American Journal of Physiology, Baltimore

98: 1-179 (Aug.) 1931

Study of Certain Factors Concerned in Specific Dynamic Action of Amino-Acids Administered Intravenously and Comparison with Oral Administration. C. M. Wilhelmj, J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 1.
Physiologic Responses and Immune Reactions to Extracts of Certain Intestinal Parasites. H. E. Essex, J. Markowitz and F. C. Mann, Rochester, Minn.—p. 18.
Changes in Basal Metabolic Rate Accompanying Condition State Induced by Morphine. Dorothy P. Gulliksen, Chicago.—p. 25.
Influence of Atropine and Pilocarpine on Thirst (Voluntary Ingestion of Water). Mary F. Montgomery, Chicago.—p. 35.
Restoration of Pancreatic Secretion by Peptone and Histamine. Margaret E. MacKay and S. G. Baxter, Montreal.—p. 42.
Studies in Decerebration: VI. Effect of Deafferentation on Decerebrate Rigidity. L. J. Pollock and L. Davis, Chicago.—p. 47.
Metabolism of Skeletal Muscle Undergoing Atrophy of Denervation. H. M. Hines, C. E. Lese and G. C. Knowlton, Iowa City.—p. 50.
Studies on Conditions of Activity in Endocrine Organs: XXVII. Question of Reflex Inhibitory Action of Vagus on Medulliadrenal Secretion. N. E. Freeman and R. A. Phillips, Boston.—p. 55.
Comparison of Effects of Acid-Base Changes on Respiratory Movements and Response of Muscle to Direct, Indirect and Reflex Stimulation. H. Gay, Ann Arbor, Mich.—p. 60.
Conditions Governing Removal of Protein Deposited in Subcutaneous Tissues of Dog. Madeleine E. Field and C. K. Drinker, Boston.—p. 66.
Colloid Osmotic Pressure of Dog Blood and Lymph. D. F. Loewen, *Madeleine E. Field* and *C. K. Drinker*, Boston.—p. 70.
Substitution of "Lecithin" for Raw Pancreas in Diet of Depancreatized Dog. J. M. Hershey and S. Soskin, Toronto.—p. 74.
Studies on Thyroglobulin: I. Digestibility of Thyroglobulin. B. O. Barnes, A. J. Carlson and A. M. Riskin, Chicago.—p. 86.
Cutaneous Respiration in Man: III. Permeability of Skin to Carbon Dioxide and Oxygen as Affected by Altering Their Tension in Air Surrounding Skin. L. A. Shaw and Anne C. Messer, Boston.—p. 93.
Excitability of Turtle Ventricle During Vagus Stimulation. W. E. Garrey and R. Ashman, Nashville, Tenn.—p. 102.
Excitability of Turtle Auricle During Vagus Stimulation. R. Ashman and W. E. Garrey, Nashville, Tenn.—p. 109.
Studies on Physiology of Reproduction in Birds: XXXI. Effects of Anterior Pituitary Hormones on Gonads and Other Organ Weights in Pigeon. O. Riddle and Irene Polhemus, Cold Spring Harbor, N. Y.—p. 121.
Does Hemophilic Blood Contain Excess of Anticoagulant? P. S. Evans, Jr., and W. H. Howell, Baltimore.—p. 131.
"Excess Respiratory Quotient" of Recovery Period Following Strenuous Muscular Exercise in Man. C. L. Gemmill, Baltimore.—p. 135.
Studies on Adrenal Cortex: IV. Further Observations on Preparation and Chemical Properties of Cortical Hormone. W. W. Swingle and J. J. Pfiffner, Princeton, N. J.—p. 144.
Activity of Isolated Uterus and Its Relation to Estrous Cycle in Albino Rat. E. P. Durrant and S. Rosenfeld, Columbus, Ohio.—p. 153.
Emotional Hypercholesterolemia. C. Lyons, Boston.—p. 156.
Studies in Cardiac Permeability. J. M. Ort, M. H. Power and J. Markowitz, Rochester, Minn.—*p. 163*
Relationship Between Food and Water Intakes in Mice. F. C. Bing and L. B. Mendel, Cleveland.—p. 169.

American Journal of Public Health, New York

21: 843-976 (Aug.) 1931

The Infant Before, During and After Birth. R. A. Bolt, Cleveland.—p. 843
Community Health Program as It Applies to Child of From One to Six Years. C. F. Wilinsky, Boston.—p. 851.
Present Status of Acidophilus Milk. W. D. Frost and T. H Butterworth, Madison, Wis., and S. M. Farr, Genesee, Wis.—p. 862
*Transformation of Intestinal Flora Through Feeding of Unfermented Acidophilus Milk. R. P. Myers, Baltimore.—p. 867.
Studies of Viability of L. Acidophilus in "Acidophilus Milk." W. L. Kulp, Storrs, Conn.—p. 873.
*Diphtheria Immunization by Three and Four Injections of Toxin-Antitoxin: Comparative Trend of Immunizing Process. V. K. Volk, Pontiac, Mich.—p. 884.
What Social Work Is Not. Eleanor E. Kelly, Boston.—p. 891.
Hygienic and Sanitary Features of Milk Production by Rotolactor Process. J. G. Hardenberg, Plainsboro, N. J.—p. 895.

Unfermented Acidophilus Milk.—Myers shows that the cells of *Bacillus acidophilus* which are suspended in unfermented acidophilus milk are susceptible of being implanted in the human intestinal tract. It appears, then, that the process of manufacture does not injure the viability of the organisms and that the most important consideration is the use of a strain of *B. acidophilus* which is adapted for growth in the intestine. In sixteen experiments on human subjects, successful implantation of *B. acidophilus*, as determined by the plate method, was obtained in each case. In twelve of the sixteen experiments a predominant *B. acidophilus* flora was obtained by the regular consumption of approximately 1 quart of unfermented acidophilus milk a day, no other modification of the ordinary diets of the subjects having been made.

Diphtheria Immunization.—Volk carried on studies among 1,282 children to ascertain the development of immunity against diphtheria. Group one, 336 children, received three injections of toxin-antitoxin and showed immunity after the first year in 64.4 per cent and after the second year in about 85 per cent. Group two, 946 children, received four injections of toxin-antitoxin and showed immunity after the first year in 74 per cent and after the second year in 92 per cent. Four injections of toxin-antitoxin do not produce any more untoward reaction than three and are not unpractical either in private practice or as a public health procedure in schools. The use of four injections appears to be a preferable method of toxin-antitoxin administration until diphtheria toxoid has been sufficiently tested to justify its use in either preschool children alone or in all groups and ages. The Schick test need not be given as a routine procedure at the end of the first year, if at all, after administration of four injections of toxin-antitoxin. Simplifying the procedure by the omission of the final Schick test would encourage the private physician to undertake the work of immunization. The time saved by the omission of the final Schick test would enable the health officer to reach a larger group of unprotected children. The Schick test would, of course, remain an indispensable test in research work, preliminary testing, in times of unusual prevalence of diphtheria in communities or institutions where conditions are favorable for the spread of the disease, or where it is necessary to know the exact status of immunity at all times.

American Journal of Syphilis, St. Louis

15: 289-448 (July) 1931

Clinical Appraisal of Syphilophobia. R. L. Gilman, Philadelphia.—p. 295.
Bismuth Arsphenamine Sulphonate (Bismarsen) in Treatment of Tabes Dorsalis. S. B. Hadden and G. Wilson, Philadelphia.—p. 316.
*Antisyphilitic Action of Malarial Parasite in Other Than Central Nervous System Syphilis. C. C. Dennie, H. M. Gilkey and S. F. Pakula, Kansas City.—p. 320.
*Aplastic Anemia Occurring During Treatment of Syphilis with Arsphenamines. D. J. Stephens, Rochester, N. Y.—p. 333.
Paroxysmal Hemoglobinuria: Three Cases. F. Thurmon and D. Blain, Boston.—p. 350.
Neoarsphenamine Exfoliative Dermatitis with Gangrene of Lower Extremities: Case. F. Ronchese, Providence.—p. 368.
Association of Cancer and Syphilis as Determined by Positive Serology. G. H. Belote, Ann Arbor, Mich.—p. 372.
*Further Studies on Wassermann Reaction in Joint Fluid. D. H. Kling and J. Pincus, New York.—p. 376.
*Recent Developments in Serology of Syphilis. J. A. Kolmer, Philadelphia.—p. 383.
Reagin Content of Serum in Various Manifestations of Syphilis. S. C. Schwartz, Washington, D. C.—p. 387.
*Influence of Temperature on Kahn Test. R. S. Muckenfuss and Elsa Ebel, St. Louis.—p. 391.
*Study of Wassermann Reaction in Pregnancy and Early Infancy. F. A. Hemsath, New York.—p. 396.
Comparison of Kline and Wassermann Tests in Primary Syphilis. L. Chargin and T. Rosenthal, New York, with Remarks on Kline Test by J. Koopman, New York.—p. 405.

Antisyphilitic Action of Malarial Parasite.—Dennie and his associates show that the malaria parasite itself or through some of its secondary action is antagonistic to the presence of *Spirochaeta pallida* and to the reactions that are produced by it, and that its use in syphilitic individuals causes the actual disappearance of hyperplastic or destructive syphilitic lesions. They do not advocate as a superior remedy the use of therapeutic malaria in preference to the arsphenamines, mercury, bismuth or the iodides. In early acute interstitial keratitis, malaria therapy seemingly caused rapid disappearance of lacrimation, photophobia and circumciliary injection and produced rapid clearing of haziness of the cornea. In old cases of chronic interstitial keratitis in which connective tissue is present in the cornea, no benefit would be obtained in the use of malaria. The haziness would remain unchanged. In hyperplastic bone syphilis the action of malarial therapy was apparently decided. The superimposed bone disappeared quickly. In cases of periarticular infiltration of the knee joint the hyperplastic tissue disappeared and function was restored. In resistant malignant skin syphilis in which all other methods had failed, a remarkable recovery was secured in a short time. Malaria does not as a rule change a persistently positive blood Wassermann reaction to a negative one. This fact has been observed in both congenital and acquired syphilis. In two cases of resistant skin syphilis in which the lesions disappeared with malarial therapy, a slow recurrence of the skin manifestation became apparent in a few weeks. The authors believe that malaria does not produce a clinical cure in any case of syphilis but so raises the natural immunity forces of the body against the disease that the affected individual can combat his infection better after having malarial inoculation. The response to subsequent antisyphilitic remedies was better than it was before malaria was given. They therefore strongly advise that all persons with resistant or refractory syphilis, whether they are affected with the somatic or the central nervous system type, be given the advantage of subsequent antisyphilitic treatment.

Aplastic Anemia Occurring During Treatment of Syphilis.—According to Stephens, the development of bone marrow depression is an infrequent but serious complication of the treatment of syphilis with the arsphenamines. The clinical manifestations of the disease depend on the extent of injury and the particular element or elements of the marrow affected. The occurrence of this condition seems to bear no relation to the number of injections or the total amount of the drug received; of the various arsphenamine preparations, neoarsphenamine is apparently the most frequent offender. Two cases of aplastic anemia developing during treatment with the arsphenamines are described. The bone marrow of one of the patients showed evidence of beginning active regeneration of marrow cells. Bone marrow depression following the arsphenamines is probably due to the toxic action of the drug or its closely allied derivatives on the marrow of a susceptible individual rather than to the action of either the arsenic or the benzene radical of the molecule.

Wassermann Reaction in Joint Fluid.—Kling and Pincus carried out the Wassermann reaction in a series of 150 cases of chronic and of acute arthritis. It was found to be positive in fifteen cases and negative in 134. The observation of a strict technic is reemphasized. The presence of other infections does not interfere markedly with the Wassermann reaction in the joint fluids. The reaction was found to run parallel in the joint fluid and in the blood. Contrary to the opinion of other investigators, the authors believe that the reaction by itself does not prove the syphilitic nature of a given case of arthritis. This is accomplished by excluding first other possible etiologic factors through a complete study of the joint fluid, by clinical symptoms, roentgen changes and particularly by the therapeutic test of the effect of the antisyphilitic treatment. A practical application of the test is the detection of syphilitic persons with otherwise negative signs. For this reason the Wassermann reaction should be carried out as a routine procedure in every aspirated joint effusion.

Developments in Serology of Syphilis.—Kolmer believes that, despite technical improvements of the past several years resulting in an increased sensitiveness of serum tests, all complement-fixation and flocculation procedures are still capable of yielding falsely negative reactions and especially in some cases of extremely latent syphilis with especial reference to late congenital or prenatal syphilis of children and syphilis of childbearing women. There is still room for a further increase of sensitiveness; but this is to be carried only so far as is consistent with specificity, since it is a simple matter to make the highly regrettable mistake of increasing sensitiveness to the point at which falsely positive reactions occur. It is better to fail in the diagnosis of an occasional case of syphilis than to run unnecessary risks of making a false diagnosis. The basis of this thought and practice is the fact that the serum tests for syphilis should possess only the maximum of sensitiveness consistent with specificity. And with this in mind simplicity of technic along with economy of time and materials should be regarded as of secondary importance only. The general result is that the serum diagnosis of syphilis and the dependence on serologic tests as guides in treatment are best served at present by two or more procedures, one of which should be a Wassermann test of proved sensitiveness and reliability.

Influence of Temperature on Kahn Test.—Muckenfuss and Ebel state that, although the number of positive serums in their series is small, the incidence of reactions intensified as the temperature was raised seemed great enough to justify the conclusion that in general the reaction is intensified as the temperature is elevated. In most instances an increase in degree of a positive reaction was the change observed, but from 5 to 7 per cent of the serums which gave negative reactions at room temperature were positive to some extent if incubated at 37 C. for ten to fifteen minutes before shaking. Most of the serums used were from patients under treatment for syphilis, so that a study of the clinical histories yielded no significant information concerning the effect of changing the temperature on the diagnostic value of the test. There was, however, no evidence that increasing the temperature resulted in the appearance of false positive reactions. In a small number of instances the reaction was diminished as the temperature was increased. Examination of the clinical records of these patients showed most of them to come from known cases of syphilis, and one which changed from plus-minus to negative came from a patient who had had repeated negative serologic tests. The test, as standardized by Kahn, is ordinarily run at a room temperature of from 21 to 24 C. The fluctuations in laboratory temperature during some seasons of the year may be considerably greater than this, so that, if results are to be compared from time to time, the sensitiveness of the reaction will vary unless a constant temperature is used. Since the higher temperature is the more sensitive, it seems advisable to suggest that a short incubation period at 37 C. before shaking should be used as a routine.

Wassermann Reaction in Pregnancy.—Hemsath gives the results of the Wassermann test (New York State methods) on 6,800 admissions during twenty-one months at the New York Lying-In Hospital. The incidence of fixations was calculated from the results of tests on 4,500 pregnant women admitted to the antepartum clinics during one year. Thirteen per cent were Negroes. *One hundred and seventy-nine cases showed marked* fixation (two plus or stronger) with one or both antigens, an incidence of 4 per cent. The incidence was 2.5 per cent for the white patients and 12 per cent for the Negro. Two cases per thousand showed anticomplementary reactions. In 80 per cent of the positive cases, two or more specimens of blood were tested. The only instance of spontaneous change to a negative reaction following delivery among 140 positive cases which were retested on the seventh day post partum occurred in a case which had shown fixation only with noncholesterolized antigens. No evidence was found to justify the conclusion that a positive Wassermann reaction, confirmed by repeated tests, should be subject to any different interpretation in pregnant than in nonpregnant women.

Annals of Internal Medicine, Ann Arbor, Mich.

5: 95-246 (Aug.) 1931

Chronic Nonvalvular Cardiac Disease or Chronic Myocardial Insufficiency and Its Therapeutic Management. H. A. Christian, Boston.—p. 95.
Circulatory Adjustments in Heart Disease: A Concept of Circulatory Failure. Soma Weiss, Boston.—p. 100.
Dissecting Aneurysms of Aorta, Including Traumatic Type: Three Cases. P. C. Samson, Chicago.—p. 117.
Clinical and Experimental Observations on Treatment of Pernicious Anemia with Desiccated Stomach and with Liver Extract. C. C. Sturgis and R. Isaacs, Ann Arbor.—p. 131.
Adequate Treatment of Anemia. G. R. Minot and W. B. Castle, Boston. —p. 159.
Complement Fixation in Diagnosis of Amebiasis. C. F. Craig, Washington, D. C.—p. 170.
Pathologic Classification of Goiter and Its Clinical Significance. W. C. MacCarty, Rochester, Minn.—p. 178.
Heart in Hyperthyroidism. H. M. Thomas, Jr., Baltimore.—p. 184.
Medical Aspects of Peptic Ulcer. A. F. R. Andresen, Brooklyn.—p. 192.
Malignant Melanoma with Delayed Metastatic Growths. D. L. Wilbur and H. R. Hartman, Rochester, Minn.—p. 201.
The Hospital: Its Relation to Community and to Medical Profession. W. H. Smith, Baltimore.—p. 212.
The Profession and the Public. G. E. Follansbee, Cleveland.—p. 224.

Archives of Internal Medicine, Chicago

48: 1-170 (July) 1931

Experimental Nephrotic Edema. L. Leiter, Chicago.—p. 1.
*Is Poliomyelitis a Disease of Lymphatic System? M. T. Burrows, Pasadena, Calif.—p. 33.
*Experimental Edema. S. A. Shelburne, Dallas, Texas, and W. C. Egloff, Boston.—p. 51.
*Insulin: Some Effects on Normal Rabbits Protected from Hypoglycemia by Ingestion of Dextrose. R. F. Loeb, Emily G. Nichols and Beryl H. Paige, New York.—p. 70.
*Acute Toxic Hepatitis (Acute Yellow Atrophy) Due to Cinchophen: Case. K. K. Sherwood, Redmond, Wash., and H. H. Sherwood, Kirkland, Wash.—p. 82.
*Essential Hypertension: Diastolic Blood Pressure: Its Variability. D. Ayman, Boston.—p. 89.
*Cinchophen Oxidation Test of Function of Hepatic Cells. S. S. Lichtman, New York.—p. 98.
*Physostigmine Salicylate in Treatment of Exophthalmic Goiter: Two Hundred Cases. I. Bram, Philadelphia.—p. 126.
Staining of Reticulocytes by Brilliant Cresyl Blue: Influence of Solutions of Substances. C. W. Heath and Geneva A. Daland, Boston.—p. 133.
*Paravertebral Injections of Alcohol for Relief of Cardiac Pain: Review of Experience to Date and Report of Nine Cases. R. L. Levy and R. L. Moore, New York.—p. 146.

Poliomyelitis.—Burrows states that while the exact portal of entry of poliomyelitis is not known, from the clinical and pathologic studies available it seems that the disease must enter by way of the gastro-intestinal lymphatics (Peyer's patches and the solitary follicles). Symptoms in the latter region are always present, while symptoms in the throat are not common. From this portal of entry the disease spreads to contiguous lymphatic tissues in the body. In the mild cases, immunity and recovery result after a limited amount of this tissue is involved. In the less resistant cases, wider extension results, even to the involvement of the lymphoid structures of the central nervous system. In this regard the disease resembles other infectious diseases. When a number of persons are infected, for instance, with streptococcal sore throat, in one the disease ends after an involvement of the throat alone; in another it spreads from the throat to the larynx and trachea; in another to the bronchi; and in others pneumonia and death result. So in infantile paralysis it appears that, in the great mass of cases, immunity develops with involvement of small parts of the peripheral lymphatic tissue; in others, more of this tissue is involved, so that one may palpate the cervical, axillary, inguinal and even the epitrochlear and popliteal lymph nodes; in still others, the infection spreads to the lymphatic structures of the nerve tissue. While there was a time when it was thought that poliomyelitis was peculiar in that cases of it are often widely separated, it has now become known that this is not true. It is evidently only a complication in a widespread infectious disease. Most persons show a striking resistance to this infection. An involvement of the gastro-intestinal lymphatics alone is the picture seen in most of them. Many others do not show these symptoms to an extent sufficient to stop their ordinary pursuits of life. It is in the light of these facts and the pathology as it is known that the author has suggested that the name infantile paralysis be changed. It is possible that such a change in the name and the new attitude that it may create will lead to a more rapid advance in the knowledge of the nature of the disease. Such a change in name may also create a more understanding attitude toward it on the part of the public and correct some false impressions. At present the methods of quarantine are evidently inadequate and probably quite useless in most instances. Since it appears that this disease is as widespread as measles, and since the great majority of cases are mild, it does not seem likely that a sufficient number of cases can be recognized to stop any epidemic by quarantine. It is evident, therefore, that other methods must be devised. It seems necessary from the clinical and pathologic studies already made that some method be devised by which the resistance of the whole population can be raised. Some method of vaccination or inoculation such as that used in diphtheria may be the means by which the hideous aspects of this disease can be removed. A mild infection with poliomyelitis seems to leave no bad effects. It is the paralysis or paralysis and death that await the few in every community that must be guarded against.

Experimental Edema.—Shelburne and Egloff produced edema in a dog by a diet low in protein but adequate in carbohydrate and fat. The chemical, pathologic and clinical observations made on this animal were essentially the same as the observations made on those in which edema had been produced by selective removal of plasma proteins (plasmapheresis). The chemical, pathologic and clinical determination made on all the dogs were similar to those found for dogs in which edema was produced through an inadequacy of protein in the diet. Sodium chloride and sodium bicarbonate increased the edema of dogs with a constant low level of plasma protein, while potassium chloride did not. This is further evidence that the sodium ion has a greater influence on edema than the chloride ion. It seems probable that, given a low plasma protein, the amount of edema is determined by the quantity of the intake of the sodium ion. Evidence is presented to show that the power of the kidney for excreting chloride is normal in edema produced experimentally with a low plasma protein.

Insulin.—Loeb and his associates made a comparative study of the effects of "small" and of "massive" doses of insulin in well fed and previously starved normal adult rabbits protected from hypoglycemia by the ingestion of large amounts of dextrose. The marked variation in the blood sugar curves of rabbits receiving identical treatment is emphasized. "Massive" doses of insulin do not have a greater effect on the hyperglycemia resulting from administration of dextrose than do "small" doses. Evidence is presented which suggests that in well fed rabbits massive doses of insulin have not only relatively but actually less effect on hyperglycemia than do small doses. The storage of glycogen in the liver is suppressed by insulin in spite of the presence of persistent and marked hyperglycemia. In contrast to observations made in the presence of hypoglycemia, no definite histologic changes are found in the suprarenal glands of rabbits protected from insulin shock by dextrose. This suggests that the changes observed by other investigators were associated with hypoglycemia and were not due to the action of insulin per se. The injection of from 300 to 500 clinical units of insulin produces no general "toxic" effect in normal rabbits.

Acute Hepatitis.—The Sherwoods call attention to the fact that the administration of cinchophen is occasionally accompanied by toxic symptoms. These toxic symptoms are of two types, affecting either the skin or the liver. Twelve cases presenting skin manifestations were collected from the literature; unless complicated by symptoms in the liver, none of these were fatal. Once cutaneous symptoms appear, the readministration of the drug, even in smaller doses, will cause their recurrence. Forty-eight cases of acute hepatic necrosis were collected from the literature, and one case was added. Fifteen fatalities were reported. Poisoning is apparently due to an abnormal decomposition of cinchophen in the body and its retention, thus corresponding to that occurring in munition workers (due to trinitrotoluene poisoning). Neither the length of time the drug was administered nor any save excessive doses (70 grains) appear to predispose to the onset of toxic symptoms. Pathologically, in the fifteen cases in which death occurred, acute hepatic necrosis (acute yellow atrophy) was found with acute fatty degeneration of the heart and kidneys. Therapy consists of complete rest in bed and the forced feeding of fluids and carbohydrates. Only one patient who recovered retained clinical signs of portal stasis (splenomegaly). Readministration of the drug, even in much smaller doses, will usually produce jaundice immediately.

Essential Hypertension.—Ayman found that in seventy-six unselected, untreated patients with essential hypertension, the diastolic blood pressure fluctuated widely during periods of observation extending in the individual cases up to one and a half years. It therefore cannot be denied that patients with even advanced essential hypertension may, and usually do, have marked fluctuations in their diastolic blood pressure from visit to visit. The degree of fluctuation depends to a certain extent on the number of observations made on the patient: the more frequent the observations, the greater the fluctuation recorded. The lowering effect on the diastolic blood pressure of sitting in a quiet room also seems definite and, conversely, the elevating effect of excitement. It also is seen that in these observations no patient had a fixed, nonfluctuating hypertension. The systolic and diastolic blood pressures fluctuated in all cases, including the few with definite renal involvement. This suggests that, perhaps outside of some cases with extremely advanced so-called malignant hypertension, practically all patients with essential hypertension have fluctuating blood pressures, and as much, by proportion, in the diastolic as in the systolic blood pressure.

Cinchophen Oxidation Test.—Lichtman describes a practical simple and extremely sensitive colorimetric method for the estimation of 2-(ortho-hydroxy-phenyl)-quinoline-4-carboxylic acid (oxy-cinchophen), based on the characteristic Skorczewski-Sohn color reaction and revealing this substance in dilutions of 0.0002 per cent. This test for the functioning of the liver is based on the estimation of the twenty-four hour excretion of oxy-cinchophen in the urine following the ingestion of a standard dose of 0.45 Gm. of cinchophen. In a group of fifty subjects without hepatic dysfunction, from 30 to 100 mg., or from 7 to 21 per cent, of the test dose, was excreted as oxy-cinchophen. The increase in excretion of oxy-cinchophen in the urine may be useful as a quantitative index of an altered metabolism of the cells of the liver whereby they have lost their capacity to decompose this substance further. Biliary stasis or obstruction per se does not materially influence the results of the test, at least not early in the disease. The ingestion of a standard test dose of 0.45 Gm. of cinchophen has not elicited hepatotoxic effects. A limited clinical experience with the test suggests certain diagnostic opportunities. The results indicate that in biliary obstruction due to stone or stricture and in metastatic carcinoma of the liver the daily excretion of oxy-cinchophen is usually less than 200 mg. (42 per cent), while in diffuse degenerative and acute inflammatory lesions involving the parenchyma of the liver more than 200 mg. is excreted in twenty-four hours. In cirrhosis of the liver the results may be normal or below 200 mg. in the chronic stage and above 200 mg. only when an acute or subacute degeneration of the liver is superimposed. In catarrhal jaundice the results are usually below 200 mg. with an occasional sharp increase on repeated tests. In carcinoma of the pancreas a persistent increase above 200 mg. has thus far been obtained. In extrahepatic diseases, such as chronic heart failure, duodenal ulcer, exophthalmic goiter, acute rheumatic fever and pneumonia, there is sometimes an increase in the excretion of oxy-cinchophen.

Exophthalmic Goiter.—Bram discusses the results of the administration of physostigmine for a period of ten weeks in 200 cases of active exophthalmic goiter. In ninety-eight, or 49 per cent, the benefit obtained was highly encouraging and may be lasting; in forty-eight, or 24 per cent, the benefit was transient though tangible, and in the remaining fifty-four, or 27 per cent, no benefit was discerned. Excepting in five patients suffering from persistent diarrhea, no contraindications or untoward results were noted from the administration of physostigmine salicylate in doses corresponding to one-thirtieth grain three times a day in adults. The most satisfactory results were noted: (1) in the extremes of age, i. e., in patients under 14 and above 50; (2) in those approaching remission after having had one or more crises; (3) in sufferers from this disease over a period of four or more years, i. e., the chronic or protracted forms of exophthalmic goiter; (4) in those presenting a basal metabolic rate of less than plus 40 per cent; (5) in those presenting extreme exophthalmos, and (6) in those presenting cardiac arrhythmia, especially auricular fibrillation. The improvement in the behavior of the heart was the first effect noted. A reduction in rate and force of the heart's action was followed by improvement in the basal metabolic rate and all subjective and objective manifestations of the disease. Improvement in exophthalmos in many instances of chronic and stubborn cases was gratifying. In a few cases of postoperative recurrence with excessive exophthalmos, physostigmine was particularly satisfactory in results. From these observations it appears that physostigmine deserves high regard in the management of exophthalmic goiter.

Alcohol in Cardiac Pain.—Levy and Moore, on the basis of fifty-seven cases reported in the literature and nine observed personally, make a critical analysis of the results of paravertebral injections of alcohol for relief of cardiac pain. The known facts concerning the nervous mechanisms involved in the transmission of cardiac pain are briefly stated. The technic of injection, as described, is relatively simple, but it requires skill acquired by experience on the cadaver. The procedure has the disadvantage of being unaided by visual guidance. Of forty-nine cases in which adequate data are available, 51 per cent of the patients obtained complete or almost complete relief; improvement was noted in 34 per cent, and in 15 per cent the operation was a failure. Some patients were benefited only slightly and temporarily; in others, the result was strikingly successful. In one personal case there has been complete relief from pain for sixteen months. After injection, a majority of the patients suffered from hyperesthesia of the wall of the chest and painful intercostal neuritis in the segmental distribution of the nerves into which injections were made. At times the discomfort lasted for as long as six weeks, and it was apparently unavoidable. Many patients had fever following injection, which lasted from a few days to a week. In two of the cases, effusion into the left pleural cavity followed the injections. Horner's syndrome was observed in seven of fifteen cases in which notes on this point are available. Its occurrence did not afford an index of the ultimate therapeutic result. It tended to disappear in the course of several weeks or months. From their observations the authors conclude that paravertebral injection of alcohol offers a reasonably good hope of some relief to patients with paroxysmal cardiac pain. Final judgment as to its value and limitations must be reserved until more cases have been observed over longer periods. For the present, it should be tried only after carefully planned medical treatment has failed to alleviate intense suffering. The procedure is relatively safe, and so far it has been unattended by operative fatality. The method has a sounder physiologic basis and is less dangerous than cervical sympathectomy. This form of therapy is entirely symptomatic. The basic pathologic condition is unaltered. Patients in whom pain has served as a danger signal of overexertion should be warned, if relieved from attacks, against exceeding the functional capacity of the heart.

Archives of Pathology, Chicago

12: 153-331 (Aug.) 1931

Reactions of Bone Marrow in Experimentally Induced Thrombocytosis. F. D. Gunn, Chicago.—p. 153.
Experimental Studies on Reticulo-Endothelial System: V. Influence of India Ink on Ratio of Urea in Blood. M. A. Goldzieher and I. Sherman, Brooklyn.—p. 180.
Experimental Pathology of Liver: I. Restoration of Liver of White Rat Following Partial Surgical Removal. G. M. Higgins and R. M. Anderson, Rochester, Minn.—p. 186.
Individuality Differentials in Strains of Inbred Rats. L. Loeb, St. Louis, and Helen D. King, Philadelphia.—p. 203.
Chronic Bronchitis with Foreign Body (Elastic Fibers) Reactions in Lungs. F. S. DuBois, Chicago.—p. 222.
Histogenesis of Amyloid Bodies in Central Nervous System. A. Ferraro and L. A. Damon, New York.—p. 229.
Septic Peritonitis in Man Due to Bacillus Sordellii: Case. I. C. Hall and S. H. Gray, Denver.—p. 245.

Archives of Surgery, Chicago

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*Osteochondritis Dissecans: Résumé of Theories of Etiology and Consideration of Heredity as Etiologic Factor. G. Wagoner and B. N. E. Cohn, Philadelphia.—p. 1.
Closed Intestinal Loop: III. Aseptic End-to-End Intestinal Anastomosis and Method for Making Closed Intestinal Loop Suitable for Physiologic Studies. K. H. Martzloff and G. E. Burget, Portland, Ore.—p. 26.
*Scaleniotomy in Surgical Treatment of Pulmonary Tuberculosis. J. W. Gale and W. S. Middleton, Madison, Wis.—p. 38.
Acute Pancreatitis (Pancreatic Necrosis): Experimental and Clinical Study, with Especial Reference to Significance of Biliary Tract Factor. W. H. Wangensteen, M. L. Leven and M. H. Manson, Minneapolis.—p. 47.
Ascending Urinary Infection: Experimental Study. W. J. Carson, Milwaukee.—p. 74.
*Carcinoma of Breast in Young. B. J. Lee, New York.—p. 83.
*Esophageal Fistula in Experimental Animal. T. S. Wilder and J. Stokes, Jr., Philadelphia.—p. 111.
*Partial Cholecystectomy. W. L. Estes, Jr., Bethlehem, Pa.—p. 119.
*Spontaneous Rupture of Urinary Bladder: Two Cases. E. Stone, Providence, R. I.—p. 129.
Cause of Death in Acute Diffuse Peritonitis. B. Steinberg, Toledo, Ohio.—p. 145.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; J. Verbrugge, Antwerp, Belgium, and A. A. Kutzmann, Los Angeles.—p. 157.

Osteochondritis Dissecans.—Wagoner and Cohn abstract the various theories of the etiology of osteochondritis dissecans found in the literature. They also give five case reports in which osteochondritis dissecans of the knee joint was found in various members of the same family: in three men of one family—son, father and paternal uncle—and in two brothers, in one of whom there was bilateral involvement. On the basis of their observations they conclude that heredity operates as an etiologic factor in the occurrence of osteochondritis dissecans.

Scaleniotomy in Tuberculosis.—Gale and Middleton believe that phrenic block has an established place in the surgical treatment for pulmonary tuberculosis, regardless of location. This measure may be useful either independently or as an adjunct to thoracoplasty. The utilization of phrenic block as a test of the patient's recuperative power or resistance is a recognized procedure. The increased respiratory activity of the upper part of the thorax after paralysis of the diaphragm raises a question as to the physiologic soundness of the operation in apical lesions. From experimental and clinical studies the scaleni have been proved to have an important relation to the respiratory activity of the upper part of the thorax. In a series of cases of pulmonary tuberculosis, scaleniotomy has induced satisfactory immobilization of the involved apex. Combined scaleniotomy and phrenic block apparently answer the need for some surgical measure to induce apical rest coincident with paralysis of the diaphragm. When phrenic block has not effected the desired improvement, one may perform scaleniotomy as an adjunct of a conservative type at a later period, before resorting to a radical measure. The anatomic relationships render simple the combined operation (scaleniotomy and phrenic exeresis). Alone or combined with phrenic exeresis, scaleniotomy must be considered as a preparatory stage when more radical measures are inevitable. Through section of the scaleni, the first rib is subjected to the caudal pull of the intercostal muscles; therefore, when paravertebral thoracoplasty must subsequently be performed, the extent of the resection of the first rib may be reduced and the desired effect obtained. Hence the technical difficulties in the surgical approach to this portion of the first stage of the thoracoplasty may be materially reduced.

Carcinoma of Breast in Young.—Lee emphasizes the fact that cancer of the breast in young women is a much more menacing disease than it is in midlife or in old age. The course is often dramatic in its rapidity, almost simulating an infectious process. When the first symptom is a diffuse enlargement of the breast, a redness overlying the mammary gland or pain, surgical intervention is futile. A more careful examination of younger as compared to older women must be exercised before radical operation is undertaken. Early recurrence is more frequent in younger than in older women and indicates either a poorly chosen case for surgical intervention or poor surgical technic or both. In many of these patients, reliance must be placed entirely on radiation therapy. In well chosen cases, well planned adequate irradiation combined with a carefully performed radical amputation yields the best results.

Esophageal Fistula.—Wilder and Stokes found that, in month old pigs, experimentally produced esophageal fistulas causing complete loss of saliva did not materially interfere with normal growth. The operations were performed in three stages, without the complication of rapid death that had been reported in the case of dogs. On the basis of their observations the authors conclude that apparently loss of saliva is less harmful and proper dietary management more important in these conditions than has been supposed.

Partial Cholecystectomy.—Estes believes that partial cholecystectomy has, and should have, a restricted field. In patients in whom the surgical risk is thought to be great, it should not replace cholecystostomy. Evidence of recurrent disease in the biliary tract has appeared in but one of seven cases and in none of the cases in which a stone was impacted in the cystic duct. If argument were justified, based on so few cases, it would seem that this operation tends to act as a cholecystectomy—it prevents reformation or regeneration of the gallbladder and yet permits drainage as in cholecystostomy. It might therefore have a field of usefulness also in the rare type of secondary operation on the gallbladder in which, owing to adhesions or to a liver that cannot be rotated, cholecystectomy, although indicated, would be impossible.

Rupture of Bladder.—Stone considers spontaneous extraperitoneal rupture of the bladder as the least dangerous type of rupture. Injection of iodized oil into the bladder is suggested as a diagnostic measure. Under certain conditions, spontaneous cure may take place. The two cardinal principles in the management of the emergency phase of such cases are adequate drainage of the bladder and adequate drainage of the space of Retzius.

Indiana State Medical Assn. Journal, Fort Wayne

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Postoperative Complications of Abdominal Operations and Their Treatment. C. A. Nafe, Indianapolis.—p. 407.
Dermatitis Herpetiformis. J. R. Brayton, Indianapolis.—p. 413.
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Acute Mononucleosis. L. Keidel, Lawrenceburg.—p. 424.
First Formal Effort to Obtain a General Hospital for Indiana. W. N. Wishard, Indianapolis.—p. 426.
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Journal of Infectious Diseases, Chicago

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Study of Antibacterial Properties of Pyridium, Urinary Antiseptic. A. Goerner and F. L. Haley, Brooklyn.—p. 957.
Standardization of Vibrion Septique Antitoxin. A. S. Schlingman, Detroit.—p. 967.
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Importance of Time of Search in Examining Stained Preparations for Rare Tubercle Bacilli. J. E. Pottinger, Monrovia, Calif.—p. 985
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Quantitative Estimation of Total Protein in Cerebrospinal Fluid: New Method with Report on 359 Cases. J. B. McNaught, San Francisco.—p. 999.
Comparative Evaluation of Results of Standard Kahn Precipitation Procedure with Those Yielded by Last Two Tubes. B. S. Levine, Chicago.—p. 1017.
Treatment of Accidental Perivascular Injections of Arsphenamine or *Neoarsphenamine.* T. K. Lawless, Chicago.—p. 1019.
Fixation of Brain for Anatomic Examination. F. M. Kramer, New York.—p. 1023.

Journal of Urology, Baltimore

26: 1-165 (July) 1931

•Effect of Pituitary Extract on Tonus of Human Pelvis and Ureter and Its Possible Application in Therapeutics of Pyelitis and Related Conditions. W. B. Draper, W. Darley and J. L. Harvey, Denver.—p. 1.
Neurosurgery in Treatment of Diseases of Urinary Bladder: II. Treatment of Vesical Pain. J. R. Learmonth, Rochester, Minn.—p. 13.
•*Kidney Function Tests: New Phthaleinometer and Chart for Recording* Tests. H. H. Young, Baltimore.—p. 25.
Instrumental Treatment of Prostatism. J. R. Caulk, St. Louis.—p. 49.
•Review of Prostatectomies for Benign Prostatic Hypertrophy at Massachusetts General Hospital in Years 1926 to 1930, Inclusive. C. S. Swan and E. R. Mintz.—p. 67.
Clinical Application of Bladder Physiology. D. K. Rose, St. Louis.—p. 91.
Enuresis Nocturna: Analysis of Forty Cases, Stressing Lesions of Verumontanum as Cause. B. A. Thomas, Philadelphia, and R. J. Hubbell, Kalamazoo, Mich.—p. 107.
Hydronephrosis with Aberrant Polar Vessels: Case. H. N. Dorman, Washington, D. C.—p. 121.
Ureteral Reflux in Pregnant Dogs. E. H. Barksdale, Nashville, Tenn.—p. 131.
Observations on Contraction of Human Kidney Pelvis and Adjacent Portion of Ureter. V. J. Dardinski, Rochester, Minn.—p. 137.
Vesicovaginal and Rectovesical Fistulas: Case of Congenital Rectovesical Fistula. W. E. Lower, Cleveland.—p. 141.
Spina Bifida Occulta with Urinary Symptoms. H. V. Dindlay, New York.—p. 147.
Diverticulum of Bladder Forming Scrotal Hernia: Case. J. W. Hinton, New York.—p. 153.
Bilateral Embryonal Carcinoma of Testis: Case. J. M. Venable and O. P. Flynt, San Antonio, Texas.—p. 155.
Obturator for Modified Kelly Cystoscope. H. M. Ginsberg, Philadelphia.—p. 163.
•Presentation of New Suprapubic Tube. E. R. Myers, Saskatoon, Canada.—p. 165.

Use of Pituitary Extract in Pyelitis.—According to Draper and his associates, intramuscular injections of solution of pituitary and "ampoules of pitressin" reduce the size and density of the pelvic and ureteral shadows as shown by intravenous urography. The change in pelvic and ureteral visualization is the more pronounced the larger the dosage. With the maximum dose, 15 minims (1 cc.), a marked diminution in the size and density of the shadows occurs from three to seven minutes after the injection. Since neither solution of pituitary extract nor ampoules of pitressin when injected intramuscularly produces an antidiuresis in the presence of a diuresis previously induced by an intravenous injection of iopax, it is concluded that the shadow diminishes as the result of accelerated drainage caused by active ureteral and pelvic peristalsis and not of antidiuresis. In the clinical case of pyelitis described, marked relief of pain followed the exhibition of solution of pituitary. In this respect the solution of pituitary was much more efficient than one-sixth grain (0.011 Gm.) of morphine. The possible mechanism of this action of the solution of pituitary is discussed. It must be admitted that the therapeutic value of solution of pituitary in pyelitis and related urinary conditions is an open question.

Kidney Function Tests.—Young states that the phenolsulphonphthalein test is most valuable in showing the early impairment of renal function and is therefore the most important test to put the surgeon on his guard in cases in which prostatectomy is contemplated. Chemical changes in the blood usually demonstrate renal changes at a much later stage, but, taken in conjunction with the phenolsulphonphthalein test, are of great value. By a remarkable inverse parallelism, the two tests furnish a graphic demonstration of improvement under treatment, which is of great value to the clinician. Indigo carmine, while valuable in the cystoscopic detection of ureteral orifices when catheterization is difficult, and in giving a rough idea of the renal function of the two sides, is not nearly so accurate as the phenolsulphonphthalein test, or so valuable an index as to the operability in prostatectomy cases. For more accurate determinations of the phenolsulphonphthalein test the author presents a new rotating disk colorimeter and a new system of charting in which not only are all the important clinical and laboratory examinations provided for but also graphic curves, which show at a glance the phenolsulphonphthalein output and the chemical changes in the blood. These charts furnish the clinician with a ready method, by means of which, at a glance, the conditions present and the improvement from day to day under treatment may be seen.

Benign Prostatic Hypertrophy.—In a study of the 170 prostatectomies for benign prostatic hypertrophy performed at the Massachusetts General Hospital in the years 1926-1930, inclusive, Swan and Mintz found that the mortality has dropped from 18.8 to 5.8 per cent. As time goes on patients are presenting themselves for the operation with shorter duration of symptoms, with less and less damage to the kidneys as revealed by nonprotein nitrogen, and fewer are coming in with acute retention. In patients who had a perineal prostatectomy, healing occurred as quickly, and they had no longer total duration of time in the hospital than the ones who had suprapubic prostatectomy. No particular type of anesthesia was less fatal than any other. Each case should be decided on its own merit. When an expert anesthetist is available, gas, oxygen, ether by him is often far safer than a routine spinal anesthesia. No particular type of local skin preparation prevented wound sepsis more than any other. The causes of death were chiefly circulatory and none were renal. The cardiac consultation backed by an electrocardiogram and a 7 foot heart plate is extremely important. The authors believe that, by a continuance of the tendency to get patients in earlier for prostatectomy, the group as a whole will begin to present themselves with better circulations, as they are already presenting themselves in increasingly better renal condition, and that as a result the mortality in prostatectomy will be reduced to a minimum.

Presentation of New Suprapubic Tube.—The essential features of the tube described by Myers are clear vision and the ability to remove any obstructing clots without interfering with the tube's position and in most cases without disconnecting the apparatus in any way. The tube is stopped with a soft rubber cork, which is easily removed, allowing free access to the tube for removal of any obstructing clots and the application of light to its interior. It can be easily taken apart and cleaned and the rubber is of such high quality as to permit of repeated boilings. The shoulder at which the small tube joins is heavily reinforced and is not easily broken.

Maine Medical Journal, Portland

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Country Practice. F. L. Varney, Monson.—p. 146.

Michigan State M. Soc. Journal, Grand Rapids

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Some of Present Methods Used in Diagnosis and Treatment of Prostatic Hypertrophy. G. J. Thomas and E. W. Exley, Minneapolis.—p. 729.

New England Journal of Medicine, Boston

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Modern Nursing. A. Worcester, Waltham, Mass.—p. 334.
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Diverticulitis of Colon with Especial Reference to Sigmoid. B. C. Garrett, Shreveport, La.—p. 5.
Chronic Appendicitis. E. R. Nobles, Rosedale, Miss.—p. 13.
Acute Perforation of Peptic Ulcers. C. W. Mattingly, New Orleans.—p. 18.
Hay-Fever a Specialty. W. P. Lambeth, Shreveport, La.—p. 23.
Nonurologic Symptoms Due to Urinary Lesions. E. Weiner, Alexandria, La.—p. 28.
Malaria: Use, Misdiagnosis, Treatment and Prevention. G. H. Wood, Batesville, Miss.—p. 31.
Agranulocytic Angina: Case. S. F. Strain and B. B. O'Mara, Sanatorium, Miss.—p. 34.

New York State Journal of Medicine, New York

31: 937-1000 (Aug. 1) 1931

Treatment of Chronic Osteomyelitis with Live Maggots. F. S. Child, Port Jefferson, and E. F. Eovwera, Pearl River.—p. 937.
Lipiodol Injection of Double Uterus. F. J. Ceravolo and I. Levine, Brooklyn.—p. 943.
Deep Interfascial Infection of Neck. H. J. Burman, New York.—p. 944.
Fluoroscopic Mirror. J. Sarnoff, Brooklyn.—p. 947.
Common Errors in Diagnosis of Heart Disease. L. H. Sigler, Brooklyn.—p. 949.
Sinusoidal Current in Chronic Gonorrhea of Male. H. Neifeld, Brooklyn.—p. 951.
Grievance Committee. H. Rypins, Albany.—p. 952.
Contributions of Medical and Other Sciences. J. H. Gettinger, Bronx.—p. 953.
Various Anesthetics and Certain Methods of Their Administration: Indications and Contraindications for Their Use. J. S. Lundy, Rochester, Minn.—p. 956.
Use of Atropine or Its Derivatives for Treatment of Disease. T. S. Evans, New Haven, Conn.—p. 961.

31: 1001-1064 (Aug. 15) 1931

*Types and Locations of Brain Tumors and Other Space-Displacing Masses Within Cranial Cavity Occurring Without "Choked Disk": Seventeen Cases. D. L. Butterfield, Rochester.—p. 1001.
Tryparsamide in Treatment of Neurosyphilis. H. C. Solomon and S. H. Epstein, Boston.—p. 1012.
General Hospital Neuropsychiatry. G. K. Collier, Rochester.—p. 1016.
*Signs and Symptoms of Multiple Sclerosis with Particular Reference to Early Manifestations. A. C. Odell, Clifton Springs.—p. 1018.
Heating Apparatus for Intravenous Solutions. H. F. Morrison, Tuxedo Park.—p. 1020.
Postoperative Ileus, Its Early Recognition and Control. D. Guthrie, Sayer, Pa.—p. 1021.
Rational Topical Skin Therapy. O. L. Levin, New York.—p. 1025.
Fungous Infections of Feet: Observation of Their Incidence in a School in New York City. G. C. Andrews and F. W. Birkman, New York.—p. 1029.
*Diagnosis of Intracranial Hemorrhage in the New-Born. C. G. Grulee, Chicago.—p. 1032.
Ketogenic Diet in Treatment of Epilepsy in Children. Florence E. Warner, Binghamton.—p. 1036.

Brain Tumors.—Seventeen case histories are presented by Butterfield to illustrate the varying sites and sizes of brain tumors and other space displacing masses which may occur within the cranium without giving evidence of increased intracranial pressure through examination of eyegrounds. They all serve to illustrate the fact that large brain tumors or other space displacing masses may exist within the cranium without giving rise to a "choking" of the optic disks. This, however, does not warrant an assumption that increased intracranial pressure did not exist in many of them, as was readily proved by spinal fluid pressure readings. A lack of a choking of the disks therefore need not deter the clinician from a diagnosis of an intracranial mass if there are other signs to suggest it. A review of the literature warrants the belief that at least 15 per cent of intracranial neoplasms exist without an accompanying choking of the optic disks.

Multiple Sclerosis.—Odell's studies seem to indicate that when any patient complains of vague difficulty with the legs, especially in walking, a thorough neurologic examination is in order and that this should include a roentgen study of the spine after the intrathecal injection of iodized poppy-seed oil to rule out the presence of a cord tumor. It also confirms the observations of others to the effect that among the earlier signs of insular sclerosis will be found difficulty in walking, temporal pallor of the optic disks, absent abdominal reflex, hyperactive knee jerks and nystagmus. As a rule, if scanning speech and intention tremor do appear in the picture, they will be late symptoms and their appearance should not be awaited, if one wishes to make an early diagnosis of multiple sclerosis.

Intracranial Hemorrhage in the New-Born.—Grulee states that at present it is impossible to make a diagnosis of intracranial hemorrhage in the new-born in the majority of instances. Many of the cases which are now diagnosed hemorrhage are unquestionably due to other conditions. Information received from lumbar puncture is by no means always reliable and must be subjected to critical judgment. The reason for this lies primarily in the failure of physicians to realize the difference in symptomatology between the newly born and the older infant. It also lies in the lack of study of this group of conditions at this age, which would not be tolerated at any other period of life.

Ohio State Medical Journal, Columbus

27: 529-600 (July) 1931

Surgical Procedures in Pulmonary Tuberculosis. C. R. Steinke and C. L. Hyde, Akron.—p. 549.
Practice of Medicine: Early History and Economics. E. S. Judd, Rochester, Minn.—p. 562.
Rational Treatment of Acute Empyema. S. O. Freedlander, Cleveland.—p. 565.
Perforation of Esophagus by Chicken Bone. L. Ginsburg, Toledo.—p. 568.

Philippine Journal of Science, Manila

45: 321-481 (July) 1931

Industrial Shells of Philippines. F. Talavera and L. A. Faustino, Manila.—p. 321.
New Parasite of Philippine Amphibia. A. C. Walton, Galesburg, Ill.—p. 351.
Three New Sand Flies from Philippines. C. Manalang, Manila.—p. 355.
Malaria Transmission in Philippines: II. Infection of Anopheles Funestus Giles (Minimus) with Notes on Its Density, Probable Range of Flight, and Larval Control. C. Manalang, Manila.—p. 367.
Philippine Rosin from Pinus Insularis (Endlicher). Irene de Santos, A. P. West and J. Fontanoza, Manila.—p. 383.
Geological Reconnaissance of Northwestern Capiz Province, Panay, Philippine Islands. Q. A. Abadilla, Manila.—p. 393.
New or Little-Known Tipulidae from Philippines (Diptera), IX. C. P. Alexander, Amherst, Mass.—p. 415.
Morphology of Male Flower of Cocos Nucifera Linnaeus. J. B. Juliano and E. Quisumbing, Manila.—p. 449.
Leprosy in Cebu, I. J. Rodriguez.—p. 459.

Public Health Reports, Washington, D. C.

46: 1727-1798 (July 24) 1931

Need for Continued Study in Public Health Work. W. S. Leathers.—p. 1727.
Chemistry of Cell Division: II. Relation Between Cell Growth and Division in Amoeba Proteus. H. W. Chalkley.—p. 1736.
Air Jet Hydrocyanic Acid Sprayer. C. L. Williams.—p. 1755.

46: 1799-1868 (July 31) 1931

Sickness Among Male Industrial Employees in First Quarter of 1931. D. K. Brundage.—p. 1799.
Study of Illness Among Grade School Children. C. C. Wilson, I. V. Hiscock, J. H. Watkins and J. D. Case.—p. 1801.
Fumigation of Loaded Ships. C. L. Williams.—p. 1823.

Radiology, St. Paul

17: 215-424 (Aug.) 1931

Primary Carcinoma of Female External Genito-Urinary Organs Treated with Radium and Roentgen Rays. H. H. Bowing, Rochester, Minn. —p. 215.
Treatment of Compressed and Impacted Fractures of Bodies of Vertebrae. J. Dunlop and C. H. Parker, Pasadena, Calif.—p. 228.
New York City and Cancer Problem: What Municipality Is Doing in Care and Treatment of Cancer Patients, in Propaganda for Prevention of Cancer and in Research Work for Cancer Therapy. I. I. Kaplan, New York.—p. 235.
Roentgen Therapy of Medulloblastoma Cerebelli. F. E. Tracy and F. B. Mandeville, New Haven, Conn.—p. 259.
Results of Irradiation Treatment of Myoma of Uterus: Three Hundred and Eighteen Cases. B. F. Schreiner, Buffalo.—p. 265.
Conditions Which Result in Collapse of Lung. R. P. Potter, Marshfield, Wis.—p. 271.
Pathologic Cervix: Precancerous Lesion. B. H. Orndoff, Chicago.—p. 280.
Chemical Effects of Roentgen Rays on Some Aromatic Colors and Dyes. G. L. Clark and K. R. Fitch, Urbana, Ill.—p. 285.
Accurate Measurement of Small Electric Charges by a Null Method. L. S. Taylor, Washington, D. C.—p. 294.
Roentgen Diagnosis of Aortic Aneurysm. H. G. Sichler, Ann Arbor, Mich.—p. 304.
Relations of Antrum and Cap to Gallbladder: Gastric and Duodenal Peristalsis as Factors in Emptying Gallbladder. N. B. Newcomer, Elizabeth Newcomer and C. A. Conyers, Denver.—p. 317.
Radiography with Great Enlargement (Microradiography) and Technical Method for Radiographic Dissociation of Shadow. A. Vallebona, Genoa, Italy.—p. 340.

Rhode Island Medical Journal, Providence

14: 121-138 (Aug.) 1931

Basal Metabolism in Normal Young Women. G. W. Wells, Providence. —p. 121.
Epidermophytosis or Athlete's Foot. C. D. Sawyer, Providence.—p. 122.

Southern Medical Journal, Birmingham, Ala.

24: 569-658 (July) 1931

Gas and Air in the Tissues: Roentgenologic Study. D. A. Rhinehart, Little Rock, Ark.—p. 569.
Preliminary Report of Twenty-Three Cases of Corneal Opacities Treated with Surgery and Radium. H. L. Hilgartner and H. L. Hilgartner, Jr., Austin, Texas.—p. 574.
Krukenberg Tumors and Other Secondary Ovarian Carcinomas. J. M. Hundley, Jr., Baltimore.—p. 579.
Etiologic Studies of Granuloma Inguinale. W. A. DeMonbreun and E. W. Goodpasture, Nashville, Tenn.—p. 588.
Caput Obstipum Congenitum. L. W. Holloway, Jacksonville, Fla.—p. 597.
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Blood Transfusion. L. W. Frank, J. D. Hancock and H. M. Weeter, Louisville, Ky.—p. 611.
Skin Lesions Encountered Among Allergic Individuals. J. P. Henry, Memphis, Tenn.—p. 614.
Nervous Diseases Among Children: Review of Admissions to Children's Hospital, Washington, D. C., 1925-1930. D. D. V. Stuart, Jr., Washington, D. C.—p. 620.
Periodic Seasonal Incidence of Gastro-Intestinal Symptoms Complicating Respiratory Infections in Childhood: Seasonal Gastro-Enteritis. C. C. McLean, Birmingham.—p. 624.
Roentgen-Ray Therapy: Observations Based on Treatment of Six Hundred Cases. E. C. Thrash and W. P. Baker, Atlanta, Ga.—p. 632.
Sympathetic Ganglionectomy and Ramisectomy for Chronic Infectious Arthritis: Clinical Interpretation. P. S. Hench and W. M. Craig, Rochester, Minn.—p. 636.
Chagas' Disease in Panama: Three Cases. J. W. Miller, Panama, R. P. —p. 645.
State-Wide Dental Program. N. T. Ballou, Richmond, Va.—p. 647.
Significance of Typhoid Agglutinins in Serum of Normal Persons. L. C. Havens and Catherine R. Mayfield, Montgomery, Ala.—p. 652.
An Improved Stethoscope. J. G. Moore, Birmingham, Ala.—p. 654.

Southwestern Medicine, Phoenix, Ariz.

15: 243-296 (June) 1931

Head Injuries. C. A. Thomas, Tucson, Ariz.—p. 243.
What Constitutes a Modern Bone Surgeon? W. L. Bell, Oakland, Calif. —p. 248.
Newer Anesthetics. T. O. Burger, San Diego, Calif.—p. 250.
Spinal Anesthesia. A. P. Kimball, Yuma, Arizona.—p. 253.
Clinical Application of Sodium Amytal in Surgery and Obstetrics. E. P. Palmer and D. Fournier, Phoenix, Ariz.—p. 256.
Successful Treatment of Eczema, Angioneurotic Edema, Urticaria, Pruritus, etc., by Dietary Regulation and Digestants. O. H. Brown, Phoenix, Ariz.—p. 261.
El Paso's History of Weed Eradication Relative to Hay-Fever. Mrs. J. A. Rawlings, El Paso, Texas.—p. 265.
Case of Acute Destructive Process of Liver of Unknown Origin. S. H. Newman, El Paso, Texas.—p. 266.
Meeting of American College of Physicians, Baltimore, March 23-27. M. K. Wylder, Albuquerque, N. M.—p. 268.

15: 297-342 (July) 1931

New Mexico State Medical Society. M. K. Wylder, Albuquerque, N. M. —p. 297.
Specific Treatment of Pulmonary Tuberculosis. J. W. Flinn, Prescott, Ariz.—p. 299.
Study of Intestinal Tuberculosis. W. C. Davis, Tucson, Ariz.—p. 305.
Atelectasis (Massive Collapse) in Pulmonary Tuberculosis. E. A. Gatterdam, Phoenix, Ariz.—p. 311.
Criticism on Current Conception of Arrest in Pulmonary Tuberculosis. L. H. Fales, Livermore, Calif.—p. 318.
Surgery of Peptic Ulcer with Report of Four Recent Cases of Perforation. R. L. Ramey, El Paso, Texas, and C. R. F. Baker, Sumter, S. C.—p. 323.
Toxemias in El Paso City-County Prenatal Clinic. C. F. Rennick, El Paso, Texas.—p. 326.

Surgery, Gynecology and Obstetrics, Chicago

53: 129-272 (Aug.) 1931

*Diseases of Urinary Tract in Infancy and Childhood. H. L. Kretschmer, Chicago.—p. 129.
Arterial Encephalography and Its Value in Diagnosis of Brain Tumors. E. Moniz, A. Pinto and A. Lima, Lisbon, Portugal.—p. 155.
Study of Effects of Division of Cervical Esophagus of Dog. J. W. Beard, Virginia Butler and A. Blalock, Nashville, Tenn.—p. 169.
Derangement of Menisci of Knee Joint: End-Result Study of One Hundred and Forty-Two Cases Treated by Operation. L. A. Lantzounis, New York.—p. 182.
Primary Synovial Membrane Tumors of Joints. D. M. Faulkner, Richmond, Va.—p. 189.
Anatomic Factors Influencing Malignancy of Skin of Face. P. O. Snoke, Lancaster, Pa.—p. 196.
Technic of Transverse Cervical Cesarean Section. L. E. Phaneuf, Boston.—p. 202.
Operation for Tumors of Bladder. G. P. LaRoque, Richmond, Va.—p. 205.
Second Cesarean Section After Bilateral Ureteral Transplantation Into Sigmoid. J. M. Pierce, Ann Arbor, Mich.—p. 208.
*Gynopathic Backache: Study of Its Nature and Mechanism of Its Production, with Especial Reference to Uterine Retroversion. A. Sturmdorf, New York.—p. 209.
Surgical Approach for Removal of Certain Pineal Tumors: Case. W. P. van Wagenen, Rochester, N. Y.—p. 216.
Syphilis of Intestine. J. de la Guardia, Preston, Cuba.—p. 221.
Reestablishing Flow of Bile Into Intestinal Tract. E. Horgan, Washington.—p. 225.
Surgical Treatment of Carcinoma of Colon. F. W. Rankin, Rochester, Minn.—p. 229.
Vertical Skin Grafts for Reconstruction of Eyebrows. S. Bunnell, San Francisco.—p. 239.
Principles and Technic Involved in Present Day Treatment of Cancer of Uterine Cervix. F. E. Neef, New York.—p. 241.
Treatment of Intracapsular Fracture of Hip Joint by Method of Extension, Abduction and Internal Rotation (Whitman's Method), with Especial Reference to Group Age Sixty and Beyond. W. G. Stern, R. R. Reich, C. H. Heyman and L. E. Papurt, Cleveland.—p. 250.
Empyema in Children. G. B. Packard, Jr., Denver.—p. 255.

Diseases of Urinary Tract in Childhood.—Kretschmer states that lesions of the urinary tract in infancy and childhood occur with greater frequency than is generally supposed. The types of lesions occurring in infancy and childhood closely parallel the types found in the adult, with the exception of benign hypertrophy of the prostate and malignant disease of the prostate and bladder. In certain instances, examination has revealed the presence of serious destructive lesions of the kidney, lesions that might have been cured had an early diagnosis been made and treatment instituted. The problems of diagnosis and treatment differ in no way from the same problems in the adult. Close cooperation between the general practitioner, the pediatrician and the urologist is desired so that these patients may be examined in the early stages of their disorder and thus reap the benefit of proper treatment, thereby preventing destruction of vital organs.

Gynopathic Backache.—According to Sturmdorf, gynopathic backache is a spastic backache, the gynopathic factor being one among many causes of myospastic pain in the lumbosacral area. This form of myospasm is a protective phenomenon, analogous to that observed in other muscular areas over deep seated irritative lesions. It protects the inflamed pelvic viscera by tilting the pelvis out of the direct line of intra-abdominal pressure. A normal range of mobility at the sacrolumbar articulation responds to this protective demand without undue muscle strain and hence without pain. On the other hand, any structural or functional limitation of the essential mobility range in the sacrolumbar joint induces muscle strain manifested by spasticity and pain. The relative degree of restriction in lumbosacral mobility will determine the intensity of the muscle strain and its resulting pain. The conformation of the sacrolumbar angle determines the angle of uterine poise. The term normal uterine poise is purely relative. The poise of the uterus is normal when its long axis coincides with the axis of the plane of the pelvic inlet. As this axis varies with the angle of the individual sacrolumbar junction, so the uterus presents its coincident variation in poise, ranging from the symphysis to the sacral promontory. A uterus in this poise does not cause backache and its surgical anteversion does not cure backache. The depth of the lumbar hollow offers an approximate index of the sacrolumbar angulation and its incident uterine poise. A mobile retroversion at an angle not coincident with the axis of the plane of the pelvic inlet presents a pathologic displacement in which not the displacement as such but the cause of the displacement produces the backache. All these types are adaptively compatible with normal function and comfort. This dictum applies with equal validity to uncomplicated mobile retroversion in relation to gynopathic backache.

Texas State Journal of Medicine, Fort Worth

27: 273-338 (Aug.) 1931

Modern Conception of Tumors of Brain. E. R. Carpenter, Dallas.—p. 280.
Cancer in and About the Mouth, Treated with Irradiation by European Method. C. L. Martin and J. M. Martin, Dallas.—p. 286.
Localization of Myocardial Infarction. M. B. Whitten, Dallas.—p. 291.
Chloroma: Its Relation to Leukemic and Neoplastic Processes. W. G. Reddick and W. W. Brandes, Dallas.—p. 297.
Heart Pain. G. Graves, Houston.—p. 301.
Burning Tongue. J. C. Michael, Houston.—p. 304.
Report of Case of Multiple Myeloma. R. T. Wilson, Temple.—p. 308.
"Avertin" Anesthesia in Gynecology and Obstetrics. C. B. Sacher, Dallas.—p. 310.
Follicular Hormone in Gynecology. H. L. Kincaid, Houston.—p. 313.
Amebiasis with Especial Regard to Its Laboratory Diagnosis. S. J. Lewis, Beaumont.—p. 316.
Trichomonad Flagellates of Intestinal Tract. H. B. Williford, Temple.—p. 320.

United States Vet. Bur. M. Bull., Washington, D.C.

7: 625-716 (July) 1931

Study of Diabetes Mellitus in Ex-Service Men. P. B. Matz.—p. 625.
Healing of Pulmonary Tuberculosis. E. A. Beaudet.—p. 643.
Structural Basis of Mind. C. C. C. Brace.—p. 647.
Mental Concomitants of Heart Disease. N. Morris.—p. 651.
Importance of Routine Reexaminations of Patients in Mental Hospitals. J. A. Pringle.—p. 657.
Neurologic Findings as Aid to Determination of Degree of Disability in Psychoneuroses. A. S. Pendleton.—p. 659.
Ultraviolet Light and Calcium Salts in Epilepsy. P. J. Borrows.—p. 661.
High-Frequency Current in Treatment of Skin Manifestations of Herpes Zoster. W. E. McWhirt.—p. 664.
*Ringworm Infection of Feet. O. Like.—p. 666.
Principles Governing Authorizations of Hospital Admission. J. B. Howe.—p. 670.
Writing of Dental and Medical Papers. G. A. Bullard.—p. 680.

Ringworm Infection of Feet.—Like states that in the management of chronic ringworm infection of the feet it is important to keep the objectives in mind. Among the principal ones are the prevention of disability of the feet and of disability from secondary blood or lymph channel infections; guarding against reinfection of the patient and against the contamination of public bathing floors; the securing of maximum comfort for the patient with a minimum of trouble and expense; and finally, when possible, complete eradication. To accomplish these it is necessary to outline a plan of care and treatment that is inexpensive and convenient to carry out as a routine more or less indefinitely, as otherwise the cooperation of the patient would not prove sufficient or lasting. When exposure to infection is practically certain, as it often is, one may as well not attempt eradication but should treat the patient with the object of establishing permanent freedom from annoyance. For continued comfort in the presence of chronic infection, or in frequent reinfections, strict attention must be given to the footwear, the bath and the treatment. Shoes should be as light and airy as climatic conditions will permit, in order to make evaporation of foot moisture as prompt and rapid as possible. Air-tight footwear, such as arctics and rubbers, should be avoided. Even a shine or polish of the shoes causes a noticeable increase of moisture retention and discomfort. Hose should also be light and should have as frequent change as is necessary for comfort and for the dissipation of moisture. This may mean a change as often as once a day up to once a week. Bathing the feet aggravates the disease and hinders treatment. It should not be done as treatment but only when the general bath is needed. Before the bath the feet should be well anointed with Whitfield's ointment, petrolatum base. This helps to prevent disagreeable activity often noted after the bath. It may also lessen the chance of reinfection of the patient and of the infection of others. After the feet are well dried and the patient is ready to retire, another application of the ointment is well rubbed in. But, if the bath is taken on arising for the day, a careful application of tincture of iodine is preferred after the feet are dry. And it should be remembered that getting the feet wet with water is a bath whether it occurs accidentally in the rain, or in a tub, shower, pool or lake. In the daily application of ointment or stain, routine must be controlled somewhat by judgment and experience. With the ointment caution as to strength is advisable, because full strength may result in temporary disability. A good plan is to begin with one-half strength and gradually to increase the strength as it is found this can be done without injury to the skin. Damage to the skin from overtreatment must be avoided even though a longer time is required to secure control, for it is just as important not to lose, as it is to gain, ground. Usually before retiring one gently rubs the ointment, half or whole strength as may be needed, into the skin in small amounts until all areas are treated. When the application is finished the skin surface should be merely slightly oily, the ointment being used sparingly, rather than generously as it is prior to bathing. On arising one should find the feet rather dry, complete absorption of ointment having occurred during the night. It is at this time that an application of tincture of iodine is made. When this dries, the patient is ready to dress for the day. Fissures which occasionally appear about the bases of the toes may be handled in one of two ways. One should make an application of the stain and protect with a small strip of zinc oxide adhesive for two or three days, or omit the stain and use the ointment in its place for the same length of time. If maceration develops, one should omit the ointment and use only the stain until the condition is under control. It is well at the same time to encourage dryness by keeping the toes separated by small strips of clean gauze bandage for several days. When activity is well under control and is not in evidence subjectively or clinically, treatment is principally before and after bathing, being generously applied at these times, as already outlined. Treatment otherwise may be somewhat relaxed in frequency but is continued just sufficiently for prophylaxis.

Virginia Medical Monthly, Richmond

58: 213-282 (July) 1931

Syphilitic Cardiovascular Disease. W. B. Porter and D. C. Ashton, Richmond.—p. 213.
Sodium Amytal as Preanesthetic Agent with Especial Reference to Its Use in Orthopedic Surgery. T. F. Wheeldon and F. Pilcher, Jr., Richmond.—p. 217.
Importance of Prenatal and Postnatal Care. G. Baughman, Richmond.—p. 221.
Presidential Address. P. C. Colonna, New York.—p. 223.
Thyroid Physiology. E. A. Hines, Jr., Spartanburg, S. C.—p. 224.
Surgical Treatment of Goiter. R. G. Waterhouse, Jr., Knoxville, Tenn.—p. 226.
Effects of Thyroid Disease on Heart and Circulation. A. A. Houser, Richmond.—p. 229.
Diagnosis and Treatment of Thyroid Diseases in Children. W. A. McGee, Richmond.—p. 230.
Cesarean Section with Especial Reference to Lower Segment Transverse Incision: Case Analyses. W. R. Payne, Newport News.—p. 234.
Unusual if Not Unique Operation on Gallbladder. W. L. Peple, Richmond.—p. 238.
Some Fundamentals in Extraction of Teeth. H. Bear, Richmond.—p. 240.
Retrograde Intussusception. H. H. Schoenfeld, Washington, D. C.—p. 242.
Discussion of Prevention of Fetal and Maternal Mortality. H. H. Ware, Jr., Richmond.—p. 245.
Meningitis Caused by Bacterium Aerogenes. F. W. Shaw, Richmond.—p. 248.
Hyperhidrosis. J. B. H. Waring, Cincinnati.—p. 250.
New Anesthesias. P. Jacobson, Petersburg.—p. 252.
Intravenous Urography in Diagnosis of Renal Tuberculosis. A. Chenery, Washington, D. C.—p. 256.

FOREIGN

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Archives of Disease in Childhood, London

6: 209-258 (Aug.) 1931

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Familial Splenic Anemia. S. L. Ludbrook.—p. 239.
Case of Perforated Duodenal Ulcer in an Infant. L. Priscilla Harrison.—p. 245.
Enuresis of Allergic Origin. G. W. Bray.—p. 251.

British Journal of Experimental Pathology, London

12: 209-278 (Aug.) 1931

Ringworm Epizootic in Mice. H. J. Parish and S. Craddock.—p. 209.
Comparative Test of Estimation of Hemoglobin by Flicker Hemoglobinometer and Oxygen Capacity Method. C. E. Jenkins and C. S. D. Don.—p. 212.
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Observations on Acidity and Chloride Content of Gastric Juice: II. G. V. Rudd.—p. 226.
Study of Phosphorus Distribution in Bacterial Cultures: Part II. J. Gordon and K. E. Cooper.—p. 234.
Retardation of Lytic Processes by Colloidal Silica Solution. S. L. Cummins and C. Weatherall.—p. 239.
Effects of Colloidal Silica on Growth of Tubercle Bacilli in Blood. S. L. Cummins and C. Weatherall.—p. 245.
Immunization with Killed Herpes Virus. S. P. Bedson.—p. 254.
Studies on Immunity to Hemolytic Streptococci: III. Observations on Variations in Resistance to Phagocytosis Displayed by Broth Cultures of Strains of High and Low Virulence. R. Hare.—p. 261.
Lipolytic Activity of Tuberculous Guinea-Pigs' Tissues: III. Variation of Activity with Spread of Disease. F. C. Happold and A. Taylor.—p. 272.

British Medical Journal, London

2: 331-368 (Aug. 22) 1931

Observations on Treatment of Children at Seaside (Excluding Surgical Tuberculosis). C. Haberlin.—p. 331.
*Pruritus Ani. W. P. Macarthur.—p. 334.
Treatment of General Paralysis of Insane by Induced Malaria: Fifty Cases. R. Lees.—p. 336.
Function of Isolation Hospital in Modern Practice. E. H. R. Harries.—p. 339.
Bathing and Aural Disease. J. E. G. McGibbon.—p. 343.

Pruritus Ani.—Macarthur divides the treatment of pruritus ani into two parts, thus: first, the removal by lavage of the adult female worms which have migrated to the rectum, and, second, attempts to destroy the developing stages in the cecum, appendix, and neighboring parts of the intestine. For the first mentioned purpose nothing is superior to salt and water in a strength of two tablespoonfuls to the pint. If this should cause griping, one should reduce the salt by half, and increase later if possible. Four ounces of the solution is sufficient for an injection, which can be given most readily by means of an infant's two ounce enema bulb, the patient remaining recumbent, with the hips raised, during the operation. Probably he will be unable to retain the solution for more than one or two minutes, and when it is ejected the itching is found to have ceased completely and is not felt again during the night. It is essential that the patient should administer this treatment for himself, because it is useless if given at any time that puritus is not felt. A preliminary simple enema, more elaborate apparatus and larger quantities of fluid are unnecessary complications. The second part of the treatment is the administration of anthelmintic drugs in the hope of destroying the parasites before they migrate to the lower portions of the large intestine. It is difficult to assess their respective values, for most of the preparations recommended are either given with some laxative or themselves act as purgatives and a sharp action of bowels due to any cause may give a temporary relief from pruritus; for this reason, sufferers from undiagnosed enterobiasis sometimes attribute their troubles to constipation. The author does not know of any drug so efficacious as to do away with the necessity for rectal irrigations. Indeed, it is difficult to see how anthelmintics can reach worms lurking in the appendix and cecal pouches, and so long as even two or three are left they may greatly annoy the host. Of the preparations usually recommended, 2 grains (0.13 Gm.) of santonin combined with one-half grain (0.03 Gm.) of mild mercurous chloride is distinctly helpful. Acetarsone had no appreciable effect. Carbon tetrachloride is reported to be highly efficacious, but its employment is hardly justifiable in simple enterobiasis, which can be cured with certainty in other ways. Treatment, especially lavage, may affect the remarkable periodicity of *Enterobius*, the commonest change being an earlier descent of the egg-laying females, so that pruritus may be troublesome before bedtime. But whenever it may appear, a rectal irrigation with salt and water will stop it at once. Rectal irrigations, given as advocated, do away altogether with the necessity for application of mercurial ointments and the like.

Indian Medical Research Memoirs, Calcutta

21: 1-227 (June) 1931

Larvae of Anopheline Mosquitoes, with Full Description of Those of Indian Species. I. M. Puri.—p. 1.

Journal of Mental Science, London

77: 311-464 (April) 1931

Utility of Psychiatric Outpatient Clinic. I. Skottowe.—p. 311.
Further Results with Boltz Acetic Anhydride Test. J. E. Nicole and E. J. Fitzgerald.—p. 321.
Effect of Thyroid Administration on Blood Cholesterol. A. G. Duncan.—p. 332.
On Sense of Effort. W. Burridge.—p. 341.
On Protopathic and Epicritic Sensations. W. Burridge.—p. 344.
On Divisions of Mind. W. Burridge.—p. 345.
Further Note on Possible Structures Mediating Mind. W. Burridge.—p. 351.
On Writers' Cramp and Other Occupation Neuroses. W. Burridge.—p. 355.
On Dreams and Theories. W. Burridge.—p. 358.
Crime and Insanity in India. G. R. Parasuram.—p. 365.
Significance of Neurotic Reaction as Precursor of Schizophrenias. W. M. Harrowes.—p. 375.

Kenya & East African Medical Journal, Nairobi

8: 93-122 (July) 1931

Notes on Pathology of Syphilis. F. W. Vint.—p. 94.
Further Kikuyu Beliefs and Superstitions: Ethical Standards. R. U. Gillan.—p. 102.
Report on Anophelines and Malaria in Trans-Nzoia District. C. B. Symes.—p. 108.

Lancet, London

2: 385-436 (Aug. 22) 1931

*Simple Achlorhydric Anemia. D. T. Davies.—p. 385.
Congenital Elevation of Diaphragm: Six Cases. W. B. Wood and F. G. Wood.—p. 392.
Glossopharyngeal Neuralgia. G. Jefferson.—p. 397.
Blood Transfusion in Two Cases of Auto-Agglutination. W. Stewart and E. E. Harvey.—p. 399.
Observations on Spherule Recently Described in Disseminated Sclerosis. J. A. Praxton and F. D. M. Hocking.—p. 401.

Simple Achlorhydric Anemia.—Davies states that simple achlorhydric anemia appears to be a common and chronic anemia of adult womanhood. The evidence available is suggestive of an iron deficiency, consequent on a defective diet and an impaired gastric secretion. The disorder can be therapeutically corrected by the administration of iron, but this does not remove the cause. Attention to the gastric secretion and measures to improve it should ultimately result in a better intake and a better absorption of iron. The disease is worthy of attention, not only on account of its frequency in women and the ease of its correction from the standpoint of the anemia, but also on account of its appearance in patients who have undergone surgical treatment directed to the stomach. Its development is a further index of the normal function of hydrochloric acid secretion. In addition, it is possible that the malnutritional changes, such as those in the tongue mucosa and entrance to the food passage and in the nails, are related to a long-standing deficiency of iron.

Medical Journal of Australia, Sydney

2: 91-120 (July 25) 1931

Psychiatry and Medical Curriculum. W. S. Dawson.—p. 91.
Ammonium Persulphate in "Yeast Foods" as Cause of Allergic Dermatitis in Bakers. F. S. Hansman.—p. 94.
Effect of Gamma Rays of Radium and of Roentgen Rays on Blair Bell's Colloidal Lead. W. J. Penfold and J. Sutherland.—p. 98.
Macrogenitosomia and Other Disturbances of Growth and Development. W. S. Laurie.—p. 100.

2: 121-152 (Aug. 1) 1931

Common Ocular Conditions in General Practice. D. R. Gawler.—p. 121.
Effect of Colloidal Lead Orthophosphate on Domestic Hen. W. B. S. Bishop.—p. 130.

Quarterly Journal of Medicine, London

24: 447-640 (July) 1931

Studies on Achlorhydria and Anemia. D. T. Davies.—p. 447.
Elimination of Focal Sepsis in Treatment of Parathyroid Tetany. G. C. Linder, C. F. Harris and F. R. Fraser.—p. 469.
Right Bundle-Branch Block: Analysis of Clinical Records of Fifty-Six Cases with Typical Electrocardiograms. S. B. B. Campbell and S. I. Turkington.—p. 481.
Clinical and Epidemiologic Characteristics of Variola Minor and Its Differential Diagnosis. C. J. McSweeney.—p. 487.
*Size and Shape of Heart in Goiter. J. Parkinson and H. Cookson. —p. 499.
*Functional Disorders of Colon. E. I. Spriggs.—p. 533.
Excretion of Creatinine by Human Kidney in Health and in Nephritis. C. L. Cope.—p. 567.
Intracranial Tumors. F. M. R. Walshe.—p. 587.

Size and Shape of Heart in Goiter.—Parkinson and Cookson examined a consecutive series of 130 patients with goiter causing symptoms with the primary object of deciding the size and shape of the heart by roentgenography. In addition, a series of postmortem records of forty-three goiter cases was investigated to determine the incidence and distribution of cardiac hypertrophy. It was found that the form of the heart is often affected in a characteristic way in goiter. Undue prominence of the pulmonary arc was a striking feature of about one third of the series, sometimes appearing as a convexity on the left profile, sometimes combining with an enlargement of the heart to the left to render this profile straight. An exaggeration of this arc is often an early change, preceding any enlargement of the heart chambers. Postmortem measurements showed that the pulmonary artery was often dilated. The left auricle was not enlarged out of proportion to that of other chambers of the heart—a sharp distinction from the heart of mitral stenosis. The superior vena cava was sometimes prominent; this would be expected with the venous congestion of heart failure, but such an explanation applied to only a small proportion. The aortic arch reached too high a level in the chest in about one third. The form of the vascular pedicle was modified occasionally by a retrosternal goiter. When symptoms are mild or of short duration, the heart in goiter is normal in size and shape. When symptoms are severe and of long standing, it is in a fair proportion both enlarged and modified in shape. The greatest enlargement is seen with auricular fibrillation and failure. The special form characteristic of the goiter heart is based on a combination of prominence of the pulmonary arc, of the left ventricle, and to a minor extent of the right auricle. As a result of these changes the heart may be generally enlarged, the contour retaining much the same shape as in the normal heart, whereas almost all other forms of cardiac disease causing enlargement greatly modify the shape. In their fully developed form, changes in the left arcs produce a distinctive picture with its straight left border and a right auricular arc only slightly enlarged. The heart so disposed, when seen from in front, has some resemblance to a ham. This picture differs from that of mitral stenosis in the relatively slight prominence of the right auricle and the fuller aortic knuckle as seen in the first oblique position. It approximates more to the cardiac outline of combined mitral stenosis and aortic incompetence. Roentgen examination is a help in judging the presence or severity of a cardiac lesion in a patient with goiter. The demonstration of cardiac enlargement is important from the standpoint of the surgical treatment of goiter. When present, it is an added reason for, rather than a contraindication to, surgical treatment. Though the greater the enlargement, the poorer is the prospect of a complete return to normal, yet the aid of surgery will often be required to check the progress of the lesion. In deciding the cause of obscure cardiac symptoms or enlargement, or of auricular fibrillation with or without failure, the discovery of the characteristic roentgen picture may suggest a goitrous etiology.

Functional Disorders of Colon.—Spriggs gives an analysis of the disorders and diseases of the colon that were noted in the examination of 4,000 consecutive patients suffering from various complaints. Among these, the disorders of the colon classed as functional are colonic delay or constipation, irritable colon including nervous diarrhea, spastic colon and colospasm, mucous colitis or catarrh of the colon, and mucomembranous colitis. Coloptosis with or without gastroptosis or visceroptosis may be present with any of these disorders. Excluding colonic delay, there were reviewed in this series 242 cases in which the main diagnosis was one of functional disorder of the colon. After an account of the normal functions of the colon, etiologic factors are discussed, the chief causes of the severer forms of functional disorder being neurosis, constipation, aperients, and past infections. The overuse of aperients is thought to be as potent and frequent a cause as constipation. In an analysis of 1,000 cases of colonic delay it was found that one fourth of the patients did not complain of constipation. Of the remaining three fourths, six out of seven were taking aperients, 431 of them every day. In this group, colonic disorders were more than double as frequent as they were among the rest. Some other lesion or irritation of the alimentary system is often present. An example of reflex mucous colitis from a kidney stone is given. Coloptosis is regarded as a secondary result, with colonic delay, of a lowered tone of the intestinal wall. Careful fecal examination is necessary, but routine bacteriologic culture has proved disappointing as an aid to diagnosis or treatment. In more than 90 per cent of cases, great benefit or total relief follows adequate treatment.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 931-977 (June 8) 1931

Infantile Kala-Azar in Paris: Case. P. Lereboullet, J. Chabrun and P. Baize.—p. 932.
Malignant Granulomatosis: Pure Splenic Form. C. Achard, M. Bariéty and G. Desbuquois.—p. 937.
Diabetic Coma Resistant to Insulin. M. Labbé and R. Boulin.—p. 943.
Intraspinal Tumors and Pott's Disease: Differential Diagnosis. L. Beriel and G. Kapsalas.—p. 949.
Oxalemia and Tenia. Loeper, Soulié and Tonnet.—p. 952.
Tuberculous Meningitis. G. Caussade.—p. 955.
*Hemolytic Icterus Caused by Trichocephalus. Brulé.—p. 960.
Profile Roentgenograms in Topographic Diagnosis of Pulmonary Lesions. P. F. Armand-Delille and C. Lestocquoy.—p. 965.
Incubation Period in Tabes and in Dementia Paralytica. A. Sézary and Roudinesco.—p. 968.

Hemolytic Icterus Caused by Trichocephalus.—Brulé reports two cases of hemolytic icterus caused by *Trichocephalus.* He states that in spite of all efforts this problem is still unsolved. He concludes by stating that his two cases show that such a common parasite as *Trichocephalus* is capable of provoking hemolytic icterus. They demonstrate once more that hemolytic icterus is a pathologic syndrome that may be produced by highly variable causes. They prove also that the splenomegaly is the result and not the cause of the hemolysis. It is much simpler to cure the patient with a few doses of an anthelmintic than to perform a splenectomy on him. The latter should be reserved for cases of severe congenital hemolytic icterus in which the patient cannot be cured by any other method.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

57: 959-1005 (July 4) 1931. Partial Index

*Periarterial Sympathectomy by Chemical Action. B. Desplas.—p. 991.

Periarterial Sympathectomy by Chemical Action.—Desplas discusses the remarkable results that one obtains by means of Leriche's operation of periarterial sympathectomy. The indications for it are numerous. Unfortunately, this operation is not always simple and it can be performed only on arteries of a certain caliber. Several Austrian and German investigators have studied the effect of various chemicals on the vascular sheaths. Doppler discovered that the best agent for destroying the periarterial sympathetic nerve fibers was a 5 or 7 per cent solution of phenol. To diminish the toxicity and to provide a solution of a constant composition the phenol was replaced by tricresol. To demonstrate the absolute harmlessness of this chemical it was first tried on animals. Tricresol destroys the sympathetic nerve fibers and provokes arterial contraction. The author concludes as follows: 1. Sympathectomy performed by means of chemicals is not only practicable but also effective. It is simpler than the surgical method and gives as good and probably better results because there is a more complete and more extensive destruction of the periarterial sympathetic nerve fibers. The periarterial sheath must never be removed after the phenolization. 2. The phenolization of the vascular pedicles of the viscera is easy to perform. It changes markedly the vascularization of the adjacent viscera by the destruction of the sympathetic nerve fibers. It may be employed on all surgically accessible vessels. The author has used this method in the treatment of genital dystrophies accompanied by procreative disorders and by the classic endocrine disturbances but he has not always obtained positive results. Nevertheless the proportion of nine successes in fifteen patients treated should encourage perseverance in the use of the method.

Presse Médicale, Paris

39: 849-872 (June 10) 1931

Diabetic Gangrene. M. Labbé.—p. 849.
Pain Produced by Certain Barbital Derivatives Used in Treatment of Epilepsy. G. Maillard and P. Thomazi.—p. 851.
*Combined Treatment with Sodium Salicylate and Sodium Bicarbonate in Acute Articular Rheumatism. D. Daniélopolu, C. Dimitriu and Cimino-Bérenger.—p. 852.
Chemistry of Gastric Secretion in Cardiac Insufficiency. C. Rahier.—p. 855.

Acute Articular Rheumatism: Treatment.—Daniélopolu and his collaborators treated 130 patients with rheumatism by the oral administration of massive doses of salicylates and alkalis. Their conclusions are as follows: 1. The only specific treatment of acute polyarticular rheumatism is the treatment with salicylates. 2. The treatment with salicylates applied according to the classic methods is poorly tolerated by the patient and is insufficient. Sodium salicylate even in small doses produces the characteristic phenomena of intolerance. The usual doses of sodium salicylate (4, 6 or 8 Gm.) are insufficient. With these doses the articular symptoms as well as the fever last longer and cardiac involvement is almost certain. 3. The authors submit the method of massive doses of salicylates and alkalis, which is based on the following rules: (*a*) The total daily dose given is increased up to 25 Gm. Larger doses are given to children than to adults (per kilogram of weight). (*b*) The treatment must be started early enough and must be rapidly increased until it reaches the maximal dose. (*c*) In the moderately severe cases the average total daily intake should be 15 Gm., in the severe forms 25 Gm. (*d*) The treatment must be continued for weeks and months, as long as there are indications for it. (*e*) The doses should be divided in such a manner that the patient will have to take the medicine every two hours during the day and every four hours during the night. (*f*) Each dose should be diluted in 100 cc. of water and should be followed by a small meal. (*g*) The patient has to observe an antiketogenic regimen. (*h*) The patient's system must be alkalized by the administration of massive doses of sodium bicarbonate; a double dose of sodium bicarbonate should be given with each dose of salicylate. 4. The massive salicylo-alkali method is tolerated perfectly, despite the large daily doses and the prolongation of treatment for weeks and months. 5. This method markedly influences the fever and the articular symptoms, which disappear much more rapidly than after the regular methods of treatment. The massive salicylo-alkali method is the only one that prevents the development of chronic cardiac lesions. 6. This method should be employed also in infectious pseudorheumatism. Although it is much less effective in this condition, one may nevertheless expect some improvement.

Pediatria, Naples

39: 625-680 (June 15) 1931

Incomplete Osteogenesis. C. Sorrentino.—p. 625.
*Reflexes of the Normal New-Born. F. Rolando.—p. 645.

Reflexes of the Normal New-Born.—Rolando states that, from his experimental studies carried out under rigorous conditions and with all the necessary controls, he is induced to conclude, without confining himself to the special details of any one reflex, that the reflexes of new-born infants present a great variety of behavior, which makes their systematization difficult. This remarkable variety in type, intensity and so on makes it impossible to attribute to the reflexes any pathognomonic importance, such as may be done in the adult. It is difficult to decide whether a deviation is the expression of a change in the central nervous system, since such variations may be found also under physiologic conditions. Since, by the use of a definite method, all the more common and important nervous reflexes can be provoked, it is rather the constant absence of certain reflexes, together with possible deviations of other reflexes, such as a marked inequality of the reflex on the two sides, that will give indications as to the status of the central nervous system and as to the probability of the presence of an organic or functional change.

Policlinico, Rome

38: 265-324 (June 15) 1931. Surgical Section

Peritoneal Pseudomyxoma of Appendicular Origin. V. Alberti.—p. 265.
Strangulation of Meckel's Diverticulum in Right Femoral Hernia. G. S. Donati.—p. 278.
*Intervention in Two Hundred Cases of Gastroduodenal Ulcer. E. Oliani.—p. 288.
Retroperitoneal Echinococcus Cysts of Right Iliolumbar Region. S. Ragone.—p. 292.
Survival of Leukocytes in Certain Surgical Disorders. C. Rossi.—p. 303.
Gastrojejunocolic Fistula: Pathogenesis, Prophylaxis and Treatment. N. Spinelli.—p. 310.

Intervention in Two Hundred Cases of Gastroduodenal Ulcer.—Oliani reports his personal experience with resections for gastroduodenal ulcer. To the 300 cases previously reported, he now adds 180 cases, a total of 480 cases of resection, with the results of which he is fully satisfied. In the last 180 cases the mortality has dropped from 8.8 per cent to 6 per cent, and in the last 90 cases to 4.5 per cent. There were fifty-six operations for peptic ulcer after palliative operations. There were fifty-nine patients presenting perforated ulcers, with a mortality of 13.8 per cent; during the past year, in thirty-two cases in which operation was performed there were two deaths. The author discusses the indications for intervention, the operation and the postoperative treatment. He concludes that gastropyloric resection gives the best results. In hematemesis, after transfusion of blood he performs resection. In perforated ulcer, he limits himself to burial of the ulcer with suturing.

Riforma Medica, Naples

47: 869-908 (June 8) 1931

Germicidal Properties of Air at Seashore. O. Casagrandi.—p. 871.
*Complex Diabetic Coma. G. Pellegrini.—p. 875.
Behavior of Pressure of Cerebrospinal Fluid in Various Disorders of Nervous System. C. Olivero.—p. 881.

Complex Diabetic Coma.—Pellegrini brings out that diabetic coma may be complicated by a true renal insufficiency, which may give to the clinical picture the character of a uremic coma, and since, at other times, in diabetic coma evident signs of hepatic insufficiency may be noted, its characteristic would be the lack of ketogenesis, with a more or less accentuated reduction of the alkali reserve. Owing to the interest in such problems, the author reports a case of diabetes mellitus with grave changes in the liver, in which death was associated with complex comatose manifestations. He studies also the pathogenic mechanism.

Rivista di Patologia e Clin. della Tuberculosi, Bologna

5: 429-519 (June 30) 1931

Anatomic Changes in Guinea-Pigs Treated with Filtrates of Human Tuberculous Material. U. Soli.—p. 429.
*Use of Dietetic Treatment of Gerson, Herrmannsdorfer and Sauerbruch in Pulmonary Tuberculosis in Child. R. Pachioli and G. Gianni.—p. 446.
Coefficient of Robustness (Pignet and Gaujoux) in Tuberculosis in Child. F. Macri.—p. 470.
Transplacental Infection with Filtrable Virus. P. Zuccola.—p. 476.
Areas of Tympanism in Hydropneumothorax. A. R. Nelli.—p. 482.

Dietetic Treatment of Gerson, Herrmannsdorfer and Sauerbruch in Tuberculosis.—Pachioli and Gianni give a survey of the bibliographic material on the dietetic treatment of Gerson, Herrmannsdorfer and Sauerbruch in tuberculosis, concerning which, in recent years, numerous experiments, especially in Germany, have been made. The authors report briefly the clinical and the roentgen data and the results of laboratory examinations carried out on a group of children, with pulmonary tuberculosis, on whom the treatment was tried. They observed that the diet was well borne by all the patients and found, in the greater majority, some increase in weight and an improvement in the general condition. It was not possible, however, to discover any influence of the treatment on the pulmonary lesions or on the evolutional aspects of the disease. The authors conclude that the results secured, while not so marked as those reported by the proponents of the method, are rather favorable and are probably due chiefly to the salt-free regimen, slight value being attributed to the other therapeutic factors, particularly the mineral salts.

Archiv für Schiffs- und Tropen-Hygiene, etc., Leipzig

35: 393-442 (July) 1931. Partial Index

Histologic Investigations on Dermatitis Verrucosa and Mossy Foot. E. G. Nauck.—p. 394.
*Probable Relation of Plants Containing Coumarin to Epidemiology of Malaria. H. Ziemann.—p. 410.
Phlebotomus as Conveyer of Dog Leishmaniosis. N. J. Chodukin, M. S. Sofieff, F. J. Schevtschenko and G. L. Radsivilovskij.—p. 424.

Probable Relation of Plants Containing Coumarin to Epidemiology of Malaria.—Ziemann points out that investigators who have studied malaria have observed that in some regions malaria disappears in spite of the fact that the biologic requirements are apparently still the same. Various theories had been advanced to explain this; however, none of them seemed as convincing as the one to which d'Hérelle has called attention, which has been corroborated by observations made by Krysto and Willcocks. According to this theory plants containing coumarin, particularly a certain kind of clover, are instrumental in preventing malaria. It is assumed that female anopheles mosquitoes suck on the flowers of this clover containing coumarin and that this has a deleterious influence on the sexual forms of the malaria parasites in the infected mosquito, or it is possible that even the odor of the plants has this effect. The author recommends a further investigation of this problem and he gives lists of plants that contain coumarin.

Klinische Wochenschrift, Berlin

10: 1241-1288 (July 4) 1931

*Movement Hyperthermia and Constitutional Hyperthermia: Growth Fever. E. Feer.—p. 1241.
Electrodermatogram: Trophic Innervation of Skin. H. Regelsberger.—p. 1244.
Roentgenography of Spleen and Liver by Means of Contrast Medium. H. Baumann and C. Schilling.—p. 1249.
Use of Fresh Apple Powder in Treatment of Diarrheal Conditions in Children. A. Wiskott.—p. 1252.
Analytic Comparison of Fresh Apples and Apple Powder. G. Malyoth.—p. 1255.
Nutritional Preparation from Grain Rootlets and Yeast. Spiegel and E. Landwehr.—p. 1255.
Function of Saliva. J. K. Mayr.—p. 1257.
Relation of Acidity Curve to Secretion Actually Taking Place Following Test Drink. L. Dinkin.—p. 1259.
Experimental Evaluation of Action of Various Bromine Compounds. S. Hermann and Marie Freund.—p. 1263.
Tests Made Simultaneously with Electrocardiograph, Roentgenograph and Ionograph. J. Jacobi, R. Janker and W. Schmitz.—p. 1264.
Spleen and Carbohydrate Metabolism. A. V. Marx.—p. 1265.
Diverticula of Digestive Tract. J. Mahn.—p. 1265.

Movement Hyperthermia and Constitutional Hyperthermia: Growth Fever.—Feer states that anxious parents often consult the physician about a child, who for weeks or months has had a slightly increased temperature. The increased temperature is either discovered accidentally, or after a febrile disease it is observed that the temperature does not become entirely normal. In discussing the causes of these subfebrile temperatures, the author points out that a localized rectal hyperthermia may be the result of much exercise of the legs and therefore physiologic. Other factors that may increase the temperature are exposure to strong sunshine, hot weather, high moisture content of the air and heavy clothing. Hyperthermia that is produced by thirst, or by excessive sodium chloride and protein intake occurs especially in young children. Why external factors influence the rectal temperature more than the axillary temperature is not entirely clear, but it is probable that the autonomic nervous system plays an important part, for in sensitive and asthenic types such as in persons with dermographism, or with cardiovascular neuroses, and in children with exudative or spasmophilic diathesis or with hyperthyroidism, it is especially frequent. Even psychic factors may cause an increase in the temperature. Thus in movement hyperthermia constitutional factors are often essential. It is comparatively easy to recognize movement hyperthermia if only the rectal temperature is increased while the axillary temperature remains normal. However, it may be difficult to determine the cause of the hyperthermia, when with involvement of external and constitutional factors the axillary temperature is likewise increased. It is necessary to make sure that there are no infectious causes, no occult tuberculosis, no chronic catarrhs and inflammations of the tonsils, no pathologic processes of the ears, the teeth or the sinuses, no chronic cystopyelitis, chronic endocarditis or cerebral processes. In order that all these conditions may be excluded, observations may have to be continued for weeks or even months. It should also not be overlooked that continued overnourishment, especially with too much milk and protein foods, may cause an increased temperature. But even when all pathologic factors as well as movement hyperthermia can be excluded there are still children in whom increased temperature persists. In such cases one may assume a constitutional or habitual hyperthermia. The author also calls attention to the concurrence of hyperthermia and excessive growth and he designates this form of hyperthermia as growth fever. In the conclusion he points out that the prognosis of these forms of hyperthermia is favorable and no special care or therapeutic measure is necessary, but only a normal mode of living.

Medizinische Klinik, Berlin

27: 983-1020 (July 3) 1931

Problems in Researches on Brain. C. von Economo.—p. 983.
*Practical Method for Determination of Circulation Time by Means of Sodium Dehydrocholate. M. Winternitz, J. Deutsch and Z. Brüll.—p. 986.
Tuberculosis and Pregnancy. H. U. Ritschel.—p. 988. C'td.
Gold Therapy in Various Forms of Arthritis. R. Freund.—p. 992.
Modification of Tonus and Peristalsis of Human Digestive Tract by Electricity. A. Beutel and P. Mahler.—p. 993.
Thoracoscopy and Pneumolysis: Closed Endothoracic Division of Cord-like Adhesions and Kornitzer-Maendl Surgical Thoracoscope. E. Kornitzer and E. Waltuch.—p. 995. C'td.
Clinical Significance of "Atypical" Forms of Pneumonia. T. Bársony and J. Holló.—p. 997.
Nuisance of Tattooing. M. Bab.—p. 999.
Connection Between Chemotherapeutic Action and Reticulo-Endothelial System. R. Prigge.—p. 1000.
Sodium Biphosphate in Conditions of Exhaustion. H. Babatz.—p. 1002.

Method for Determination of Circulation Time.—After evaluating methods for the determination of the circulation time that have been employed by other investigators, Winternitz and his associates describe their own method, which they employed in 300 cases for 700 tests. They inject 5 cc. of a 20 per cent solution of sodium dehydrocholate into the vein of the arm without previously producing stasis. In normal persons there is from eight to fourteen seconds after the injection a sudden bitter taste sensation, which disappears rapidly. The circulatory conditions remain entirely unchanged. Paravenous depots are harmless and undesirable secondary effects are never observed. A repetition of the test after a short interval gives the same results. The normal circulation time is between eight and fourteen seconds. Factors that influence the circulation time are: the functional condition of the myocardium, frequency and rhythm of the heart action, condition of the blood, and peripheral circulatory factors. If rare cases of pathologic bradycardia are disregarded, the only cause of a retardation of the circulation is true cardiac insufficiency. Insufficiency of the left side of the heart retards the circulation more than that of the right side of the heart. The circulation time is especially prolonged in cardiac asthma and in Cheyne-Stokes respiration. The determination of the circulation time is of practical value in the differential diagnosis between cardiac asthma and other dyspneic conditions, for in bronchial asthma, in persons with mediastinal phlegmon, and in suffocation attacks during spontaneous pneumothorax the circulation time is normal. By means of the circulation time it is also possible to differentiate between organic and functional angina pectoris. In the functional form the circulation time is normal whereas, if the angina pectoris is caused by hypertension, mesaortitis or atherosclerosis there is a retardation. The determination of the circulation time is likewise valuable in deciding on the advisability of malariotherapy or of arsphenamine treatment and also in giving medical advice in regard to sports and to athletic activities to persons with heart disease. It is of diagnostic value in determining latent involvement of the aortic valves in mitral defects. It aids in the differential diagnosis of cardiac and extracardiac ascites; of circulatory, renal and local edema; of cardiac, cerebral, pulmonary dyspnea, and dyspnea of obese persons; in painful enlargement of the liver. The frequency and rhythm influence the circulation time only when they are extremely abnormal. There is an acceleration of the circulation in frequencies over 140 and a retardation in frequencies of less than 45. Arrhyt perpetua does not exert a marked influence. Anemia shortens the circulation time. Peripheral factors that retard circulation are not known. Remedies with a vasodilator action accelerate the circulation. Arterial hypertension, diabetes, obesity, myxedema and Addison's disease do not have a direct influence on the circulation time. Thyrotoxicosis accelerates the circulation inconstantly.

Münchener medizinische Wochenschrift, Munich

78: 1125-1166 (July 3) 1931. Partial Index

*Modification of Wassermann Reaction and of Other Reactions by Escape of Tannic Acid from Cork Stoppers of Shipping Containers. F. Plaut. —p. 1125.
Optokinetic Nystagmus in Ophthalmologic Practice. K. Vogelsang.—p. 1126.
Peritonitis Caused by Ascarids. G. B. Gruber.—p. 1129.
Influenza Bacteria in Bartholinitis. F. E. Koch and Elisabeth Krämer. —p. 1131.
Biologic Causes of Failures of Calmette Vaccination. G. Enderlein.—p. 1132.
Pathologic Changes in Rhythmic Electrocardiogram and Its Clinical Significance. A. Pierach.—p. 1136. C'cn.
Quackery on Patients with Speech and Voice Disturbances and the Guilt of Physicians. M. Nadoleczny.—p. 1139.
Cold Staining of Tubercle Bacilli with Methyl Violet. P. Deseniss.—p. 1142.

Modification of Wassermann Reaction by Tannic Acid from Stoppers of Shipping Containers.—Plaut observed that specimens of cerebrospinal fluids that were sent to the laboratory from great distances often showed a slightly yellow discoloration and in the course of the Wassermann reaction they had an anticomplementary effect. Since the specimens were from patients in whom xanthochromia as the result of hemorrhage, blockade, icterus or iodine could be excluded, the changes in the specimens must have taken place during transport. The shipping containers were closed with cork stoppers and accordingly tests were made to determine whether the stoppers were the source of a substance that caused these changes in blood or cerebrospinal fluid specimens. The results of these tests are summed up as follows: From cork stoppers of shipping containers there may escape into the specimens minute quantities of tannic acid, which cause disturbances in the course of the Wassermann reaction. Precipitations that disturb the outcome of flocculation reaction may likewise be caused by the small amounts of tannic acid. The precipitations also impair the exact determination of the protein content, and the colloid reactions of the cerebrospinal fluid may likewise be weakened. To eliminate these shortcomings the author recommends the use of rubber rather than cork stoppers for the shipping containers of specimens for seroreactions.

Wiener klinische Wochenschrift, Vienna

44: 861-896 (July 3) 1931

Ostearthritis Deformans. F. J. Lang.—p. 861.
Early Complications of Acute Otitis Media. W. Krainz.—p. 864.
Causes of True Muscle Hypertrophy in Venous Stasis. A. Posselt.—p. 867.
General Physiology of Heart: Review of Twenty Years of Experimental Work. L. Haberlandt.—p. 870.
Isolated Inflammation of Lacrimal Canal (Dacryocanaliculitis). F. Herrenschwand.—p. 871.
Medical Evaluation of Physical Condition Following Foot Races. F. Gaisböck.—p. 872.
Extended Glioma of Right Pons with Final Symptoms of Short Duration. G. Stiefler.—p. 875.
Clinical Considerations on Functional Theory of Arthritis Deformans. L. Petschacher.—p. 877.
*Observations on Tooth Pulp and on Maxillary Bone in Congenital Syphilis. W. Bauer.—p. 879.
Type of Linking of Iso-Agglutinable Qualities on Human Erythrocytes. F. Plattner and H. Hintner.—p. 882.
Nature of Alveolar Phagocytes in Lungs of Mammals. J. Mathis.—p. 885.
*Rare Ocular Changes in Thyroidal Disturbances. H. Gasteiger.—p. 887.
Etiology of Osteochondritis Coxae Juvenilis Deformans. E. Just.—p. 889.

The Tooth Pulp and Maxillary Bone in Congenital Syphilis.—Bauer points out that the significance of Hutchinson's teeth as a sign of congenital syphilis is still being disputed, and he thinks that only microscopic examination of the tooth pulp and its surroundings in children with congenital syphilis who have not undergone treatment can reveal the effects of syphilis on the teeth. He reports the results of his microscopic investigations on the upper and lower maxillae of one stillborn infant and of three infants aged 2½, 6 and 6½ weeks, respectively. All of them showed syphilitic symptoms such as syphilitic osteochondritis, gummas, syphilitic pemphigus and papules in the mouth. The results of the microscopic studies are summed up as follows: 1. In congenital syphilis spirochetes are demonstrable in the tooth germ, in the pulp in the noncalcified dentin, in the calcified dentin, in the dental sac, in the enamel germ and in the enamel epithelium. 2. The spirochetes are especially numerous in the areas of most intense growth; namely, the basal portion of the tooth germ. 3. The syphilitic process and the resulting vascular involvement and local circulatory disturbances cause changes of the odontoblasts, the ameloblasts and the dental sac. The hypoplasia of the enamel is probably the result of the injury of the ameloblasts, which in turn is caused by edema and hemorrhages. 4. The changes of the maxillary bones in congenital syphilis are a rarefying and fibrous inflammation of the bone marrow and an ossifying periostitis.

Ocular Changes in Thyroidal Disturbances.—Gasteiger reports the case of a man, aged 47, who developed symptoms of exophthalmic goiter. Following surgical treatment of the goiter there developed marked swellings of the skin of the face, particularly of the lids, also chemosis and exophthalmos. When thyroidal preparations were administered these symptoms disappeared. The psychic disorders, such as apathy and indifference, which had set in after the operation, disappeared likewise following the administration of thyroidal preparations. The author thinks that the inhibition of the movements of the eyeballs had a mechanical cause, namely, the swelling, for it was secondary, just like the marked impairment of vision, which was caused by the continuous mechanical irritation and by pollution of the cornea by secretions. In discussing the etiology the author expresses the opinion that the manifestations are myxedema symptoms, which is proved by the psychic behavior, by the type of cutaneous swellings and finally by the efficacy of thyroidal preparations. The formation of saclike cutaneous swellings may occur either in hyperthyroidism or in myxedema and can therefore be readily explained in this case. However, it is surprising that the exophthalmos developed after the disappearance of the symptoms of hyperthyroidism and simultaneously with the myxedema manifestations. It is also pointed out that this exophthalmos with its inhibited motility and with its chemosis differed from that usually observed in hyperthyroidism in that in the latter condition there usually is a normal motility of the eyeball and chemosis is absent. For this reason the author assumes that the conditions are probably caused by swellings of the orbital tissues, the existence of which is proved by the chemosis. He concludes that the manifestations in this case are rare ocular symptoms in postoperative myxedema. A review of the literature convinced him that there is no other detailed report of such cases; he found only two similar cases mentioned but detailed clinical histories were not given.

Zentralblatt für Chirurgie, Leipzig

58: 1681-1744 (July 4) 1931. Partial Index

*Uremia Following Blood Transfusion. F. J. Irsigler.—p. 1682.
Tuberculosis of Thyroid. R. Meyer.—p. 1689.
Subcutaneous Rupture of Abdominal Rectus Muscle, Especially in Persons of Advanced Age. O. Kapel.—p. 1693.
Morphology of Semilunar Bone and Injuries of Wrist Joint. E. Ettorre. —p. 1698.
*New Plaster-of-Paris Cast for Treatment of Fracture of Humerus. W. Scheiber.—p. 1701.

Uremia Following Blood Transfusion.—Irsigler reports a case of fatal hemolysis following blood transfusion. A man, aged 37, was brought to the hospital for surgical treatment with the diagnosis of perforated ulcer. The operation revealed a ruptured spleen, which was extirpated. Because of the enormous loss of blood the patient was given an intravenous infusion of 50 cc. of physiologic solution of sodium chloride and later a blood transfusion of 500 cc. The preliminary agglutination test had been negative, and immediately following the transfusion the patient's condition improved. However, on the following day the temperature increased and symptoms of uremia became manifest. Several days later the patient died in uremic coma. The author reports the results of the necropsy and then discusses the causes of uremia following blood transfusions. He thinks that uremia as a late result of blood transfusion is caused primarily by mechanical blockade of the uriniferous tubules (oliguria). The simultaneously developing alterations in the epithelial linings, especially of the main portions, are of a degenerative nature. They are probably caused by toxic products of protein disintegration, which become liberated during hemolysis. The reported case proves, what already had been indicated by animal experiments, that agglutination and hemolysis, as reactions following mixture of different types of blood, are not connected so closely as the agglutination tests indicate. In animal experiments the two phenomena can be produced independently of each other. From an agglutination test in vitro one cannot infer either the actuality or the intensity of the agglutination or the development or absence of a hemolysis in vivo. Blood transfusions should therefore be made only following careful determination of blood groups.

New Plaster-of-Paris Cast for Fracture of Humerus.—Scheiber points out that in the treatment of fractures of the humerus it is of primary importance that the position obtained by reposition be retained during the healing process. In order to counteract the dislocation, which in fractures of the humerus is caused partly by gravity and partly by muscular traction, the author devised a new method, which permits exact fixation by means of subsequently adjustable extension and by pressure from the side. Most other methods that aim to accomplish this impair the movement of the injured person considerably and require hospitalization of the patient. The author's method, however, is suitable for ambulatory treatment. Following proper rotation and abduction of the arm, the plaster is applied to the thorax over cotton, but to the shoulder, the axilla and the upper arm without cotton. To overcome the lateral dislocation, four sticks of Spanish reed are placed lengthwise on all four sides of the arm at the level of the fracture. They are covered with plaster in such a manner that only the screws at the ends remain visible. When the screws are tightened, the reeds are pressed down and in this manner fixation is accomplished by a comparatively slight pressure. The sticks are placed so that their pressure does not strike a superficial artery or nerve. In an emergency (radial nerve) a hollow reed may be used. The continuous traction is effected by steel splints that reach to the wrist. The author gives a description and an illustration showing how the traction apparatus is adjusted, and he asserts that his method is simple and gives good results and that it can be modified for fractures of the lower arm.

Zentralblatt für Gynakologie, Leipzig

55: 2145-2208 (July 11) 1931

*Hormonal Therapy of Amenorrhea. H. U. Hirsch-Hoffmann.—p. 2146.
Influence of Cycle Hormone Preparation on Sexual Function. H. Lewin.—p. 2150.
*Implantation of Ovarian Tissues as Substitute for Surgically Removed Ovaries. G. Katz.—p. 2162.
Adenomyosis. H. Lewinski.—p. 2163.
Endothelial Symptom in Pregnant Women. N. Louros.—p. 2167.
Gynecologist and Health Pass. F. H. Bardenheuer.—p. 2168.
New Self-Holding Vaginal Speculum. O. Köster.—p. 2170.

Hormonal Therapy of Amenorrhea.—In answer to the question whether the hormone preparations extracted from the urine of pregnant women have the same therapeutic effect as those that are extracted from the incretory organ, Hirsch-Hoffmann cites a case history which indicates that the organ extract is more effective. He further discusses the various types of ovarian preparations and differentiates between those that contain the follicle hormone and those that contain the corpus luteum hormone. He shows that the follicle hormone alone cannot be effective in counteracting amenorrhea but that the corpus luteum hormone is likewise necessary. Whether a combination of the two may eventually be effective has not been definitely proved as yet. The author thinks that if hormonal therapy is to be employed in amenorrhea the hormone preparations of the anterior lobe of the hypophysis should be resorted to. He warns against overdosage. The treatment should begin with small doses (from 2 to 4 rat units). In the university women's clinic in Hamburg, the hypophyseal hormone preparations were administered intravenously or intramuscularly. For intravenous injection a preparation was used that had been extracted from the anterior lobe of the hypophysis, and for the intramuscular injection a preparation was used that had been prepared from hormones eliminated with the urine. It is further pointed out that the cases in which hypophyseal hormone therapy is employed should be carefully selected. In the amenorrhea of the normal menopause the effects of the hypophyseal preparations are slight and only temporary; nevertheless, in some cases with psychic disturbances and severe deficiency symptoms hypophyseal hormone preparations may be tried. It is also necessary that the possibility of a gravidity be excluded before hormonal treatment is resorted to. A case is cited in which treatment with a hormone preparation caused an abortion, and for this reason it is recommended that the Aschheim-Zondek test should first be made. The forms of amenorrhea that are particularly suited for hypophyseal hormone therapy are the primary amenorrheas of young girls with hypoplastic genitalia and the secondary amenorrheas that follow abortions or confinements. In the latter cases, if there is a great increase in weight small quantities of a thyroid preparation should be given in addition to the hypophyseal preparation. Hyperhormonal amenorrhea may likewise be treated with hypophyseal hormone, for it is probable that the hormones produced in the organism of the patient are of inferior quality and therefore ineffective; however, one should be especially careful with regard to the dosage in these cases.

Implantation of Ovarian Tissue.—Katz points out that, in women in whom the ovaries have been removed, hormonal therapy is effective only as long as the medication is continued and when it is discontinued the deficiency symptoms are often the more severe; in some cases it is entirely ineffective. For this reason he attempted to produce permanent hormonal depots in the organism by implantation of ovarian tissues. He implanted from five to six slices, which he obtained from women in whom an ovary had to be extirpated because of a cyst, for the cyst rarely causes a degeneration of the entire ovary and usually there are healthy tissues left. He implanted the slices of ovarian tissues by means of interrupted catgut sutures into the abdominal fat tissues. The treatment was employed in seven cases and as the result the deficiency symptoms that had been caused by the castration disappeared. In five of the women menstruation even returned, after intervals of from two to three months. However, the favorable effects lasted only about two years, for the ovarian tissues had been absorbed. In order to exclude the ferment action of the fat and to prevent the rapid absorption of the ovarian tissues, the author covered them before implantation with a section of the tube 0.5 cm. in length and closed the tube at both ends. The desired effect was obtained, for in the three patients who were treated in this manner menstruation set in and the good results have persisted to the present day. The implantations were done four years ago.

Vestnik Rentgenologii i Radiologii, Leningrad

9: 1-96, 1931

*Influence of Intravenously Administered Radon on Blood. M. J. Nemenov and R. G. Gurevitch.—p. 7.
*Roentgen Diagnosis of Acute Mastoiditis. J. B. Kaplan, D. G. Rokhlin and S. A. Reinberg.—p. 19.
*Clinical and Roentgenologic Picture of Stomach in Cancer of Uterus. J. A. Oksenov.—p. 29.
*Contrast Roentgenography in Unhealed Biliary Fistulas. J. D. Danilyak and A. A. Schtuss.—p. 35.
*Electrocoagulation with Supplementary Roentgen Therapy in Cancerous Conditions of Skin and Mucous Membranes. V. O. Abgarov.—p. 39.
*Echinococcus Infection of Bone. A. A. Abalikhin.—p. 45.
Acquired Malformation of Upper Extremities: Rare Case. M. J. Goldstein and E. A. Balakshina.—p. 51.

Influence of Radon on Blood.—Nemenov and Gurevitch studied the action of intravenous administration of radon on the blood, hematopoietic organs, kidneys and lungs in experimental animals. They state that their method is of great importance in the study of the problem of blood formation. By the comparison of the results of histologic investigations of the hematopoietic organs with those of the analysis of the changes in the circulating blood, one may draw some conclusions on the interrelation between various blood elements. The question of practical use of the intravenous administration of radon for therapeutic purposes is still open. However, one may state in advance that there is a complete lack of promise in regard to the use of this method in the treatment of malignant conditions in the human body. The authors demonstrated that radon is rapidly eliminated from the system; its action is purely selective, mainly for the leukocyte-producing organs; it was shown also that erythropoiesis was not influenced by radon at all. Their microscopic investigations demonstrated as well that the organs through which radon is eliminated from the system, namely, the lungs and the kidneys, were affected comparatively little. Together, these considerations show that radon administered intravenously does not act on malignant tumors.

Roentgen Diagnosis of Acute Mastoiditis.—Kaplan and his collaborators review various roentgen methods that lead to more correct diagnosis of acute mastoidal conditions. They conclude that: 1. In the diagnosis of mastoiditis, roentgenography is a valuable, supplementary objective method in cases of acute suppurative otitis media, especially in the atypical cases. The roentgenogram of the mastoid must be evaluated only in connection with the data gained from other clinical and laboratory examinations. 2. Roentgenography of the mastoid tends to a better prognosis and narrows the group of indications for surgical intervention. 3. By defining the anatomic relations, roentgenography is a valuable aid in the surgery of the mastoid.

Stomach in Cancer of Uterus.—Oksenov studied the clinical and roentgenologic picture of the stomach in seventy-five patients with cancer of the uterus. His conclusions are as follows: 1. The picture of the stomach in patients with cancer of the uterus demonstrates in a large majority of cases various deviations from the normal; mostly there is a diminishing toxicity, a decrease in the acidity and different variations of the latter type. 2. There is some correlation between these changes (especially concerning the secretory function of the stomach) and the degree of the cancerous involvement of the uterus, as well as the general condition of the sick person. 3. In the analysis of various phenomena in this group of patients, one has always to keep in mind not only the previously mentioned gastric changes but also the possibility of the involvement of other organs, such as the peritoneum and the kidneys, which may simulate gastric disturbances.

Unhealed Biliary Fistulas.—Danilyak and Schtuss studied contrast roentgenography of unhealed biliary fistulas. They describe six cases in which postoperative fistulas developed. The authors conclude by stressing the importance of contrast roentgenography in the differentiation of the causes of the nonhealing of biliary fistulas. Contrast roentgenography allows one not only to discover the occlusion of the tracts but to diagnose the nature and the seat of this occlusion. The latter is of especial value for the surgeon, who prefers to operate according to a previously outlined plan, because in this way the risk of a secondary operation is greatly diminished. The absence of serious complications in the employment of contrast mediums makes this method highly valuable in the differentiation of the causes of the nonclosure of biliary fistulas.

Electrocoagulation in Cancer of Skin and Mucous Membranes.—Abgarov reports eight cases of cancer of the skin and mucous membranes in which he employed electrocoagulation in combination with roentgen therapy. He states that vascular neoplasms are absolutely contraindicated for electrocoagulation, while relatively contraindicated are tumors located near large vessels, tendons, and osseous or cartilaginous structures. The author enumerates the advantages of electrocoagulation in its comparison with surgical intervention. They are as follows: 1. The coagulation of the diseased tissue goes on bloodlessly. 2. There is an insignificant risk of dissemination of cancerous cells, because in the process of electrocoagulation the blood vessels and the lymphatics become thrombosed. 3. Extensive surfaces of the skin may be coagulated, with ideal cosmetic results.

Echinococcus Infection of Bone.—Abalikhin reports a case of echinococcus infection of the femur in a child, aged 13. On the basis of this case and on the review of the literature he draws the following conclusions: 1. Echinococcus infection of the osseous system is a rare disease, encountered, in general, only in 2 per cent of all echinococcus cases. Diagnosis of osseous echinococcus is difficult; hence it is often made only on the operating table. 2. One of its main signs is the frequent fracture of the diseased bone (in the author's case the femur was fractured five times). 3. Multiple echinococcus infection of bone resembles clinically as well as roentgenologically a fibrous localized osteodystrophia, with which it can be often confused. 4. Kazzoni's intradermal test does not always confirm the presence of echinococcus.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 3257-3380 (June 20) 1931

Amyloidosis Cutis. W. L. L. Carol.—p. 3258.
*Treatment of Malignant Tumors with Isamine Blue. G. A. Kreuzwendedich von dem Borne.—p. 3267.
Extraction of Teeth. T. J. Eskes.—p. 3275.
The Rat as Vector in Weil's Disease. D. J. Hulshoff Pol and J. P. Anemaet.—p. 3290.
*Treatment of Leg Ulcers with Acetylcholine. M. Ruiter.—p. 3297.

Treatment of Malignant Tumors with Isamine Blue.—Kreuzwendedich von dem Borne concludes from his researches that isamine blue is an entirely harmless substance, which, in a small percentage of cases, exerts a distinctly favorable action. Considered by itself, it is far from being a "tumor remedy." It is, however, preferable to strongly poisonous remedies such as lead. Its use when combined with diathermy, radium, roentgen irradiation and, possibly, with mesothorium deserves to be thoroughly investigated. In the after-treatment of operable tumors it may prove useful as a means of preventing metastasis and recurrence. All too often it is forgotten that also in the case of operable tumors it is a question not only of local changes but also of "tumor disease," or the general constitutional changes in the tumor patients. The numerous researches on animals, in recent years, point strongly in this direction. For these reasons isamine blue deserves a thorough testing. In inoperable cases, isamine blue often improves the general condition of the patient and relieves the pain.

Treatment of Leg Ulcers with Acetylcholine.—Ruiter treated with acetylcholine eight patients with leg ulcers, and, although the number is not large, he is convinced that acetylcholine, combined with the usual therapy, shortens perceptibly the average time required to heal leg ulcers because in a number of his cases the quality of the scar tissue was better than usual. Especially when an inadequate blood supply was evident, the results were sometimes beyond expectations. Although acetylcholine therapy in ulcers due to other causes than a primary disturbance of circulation, in the nature of the case, is less indicated, it would appear from the second of the cases here reported that even under those conditions highly satisfactory results can be secured. Whether or not the method is adapted to ambulatory treatment the author is not prepared to say, but he admits that the results with a patient who was given ambulatory treatment in a policlinic were much less satisfactory.

Ugeskrift for Læger, Copenhagen

93: 661-682 (June 18) 1931

Intravenous Pyelography. E. de F. Licht.—p. 661.
Wassermann Reaction in Children Treated in Danish Welander Homes. L. B. Lauritzen.—p. 665.
New Hook for Exerting Traction by Hand Used in Operating. V. Møller-Christensen.—p. 666.

93: 683-702 (June 25) 1931

Statistics and Medical Science. J. Fabricius-Møller.—p. 683.
*Carbohydrate Metabolism in Adiposity. S. A. Holbøll.—p. 686.
Quick Diagnosis of Diphtheria by Direct Demonstration of Diphtheria Bacilli. V. Kent.—p. 690.
*Case of Inveterate Lupus Vulgaris Treated with New Finsen Lamp. S. Lomholt.—p. 693.
Concerning Paronychia. F. Bentzen.—p. 695.

Carbohydrate Metabolism in Patients with Adiposity.—In thirty-three patients with obesity, Holbøll determined the blood sugar curve four hours after administration of 70 Gm. of dextrose. In some cases there was a higher maximum rise than normal; in nine, glycosuria. These changes occurred chiefly in patients with adiposity of long standing.

Lupus Vulgaris Treated with New Finsen Lamp.—In Lomholt's case there was extensive lupus of the face of twenty-five years' standing, treated repeatedly by various methods without results. The successful removal by electrocoagulation of a new granulation tumor on the atrophic, partly destroyed nose was followed by treatment of the entire face with three irradiations with the new Finsen lamp, each for one hour, some areas being given four treatments. The treatment lasted about three months, was well borne, and resulted in marked improvement, which has continued for one and a half years to date.

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CERTAIN PHASES OF NEPHROSCLEROSIS IN CHILDHOOD *

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In spite of the great amount of work expended on clinical analyses, studies of pathologic changes, experimental investigations and discussions of nephritis, there remains much that is obscure in the etiology, many symptoms are unexplained and, unfortunately, much too little is known of prevention and treatment. The clinician daily faces problems which make him acutely aware of the present insufficiency of knowledge. That an organization such as the Section on Diseases of Children of the American Medical Association fosters a symposium on the subject is evidence that physicians are actively searching for the solution of their practical difficulties. This can come about only through further study.

TERMINOLOGY

Discussion of the terminology of nephritis has occasioned much use of printers' ink. The close student of any problem often manifests a tendency to multiply terms and an inclination to invent or modify classifications. Most clinicians, on the other hand, demand as simple a classification as possible and the employment of terms as descriptive as can be coined. Classifications may be based on conceptions of etiology, on pathologic changes, on symptomatology or on combinations of these. The first essential is an understanding of the terms by the person employing them. There is little justification in our present state of knowledge of nephritis for the use of complicated terminology. It can be assumed that in chronic nephritis the tissue of the kidney is quite generally involved—that is, a pure glomerular, a pure tubular, or a pure interstitial nephritis does not occur, although any one of several parts of kidney structure may be primarily and preponderantly involved. If there is an exception to this, the closest approach to it is the condition known as lipoid nephrosis. Particular groups of symptoms and effects come about in acute nephritis and even in chronic nephritis which depend on whether the glomeruli or the tubules are more involved. There results, too, a syndrome associated with chronic interstitial nephritis or nephrosclerosis which will be described later. In addition to this, there is perhaps one other type of chronic kidney disease dependent on suppurative processes in the urinary tract. One questions the necessity for a multiplicity of terms such as chronic productive nephritis, chronic parenchymatous nephritis, chronic desquamative nephritis, chronic glomerular nephritis, chronic tubular nephritis, nephrosis, lipoid nephrosis, renal arteriosclerosis, renal arteriolosclerosis, granular kidney, atrophic kidney, chronic interstitial nephritis and nephrosclerosis. The present paper will deal with chronic interstitial nephritis, or nephrosclerosis—the latter term better expressing the generalized involvement of kidney structure.

ETIOLOGY

The causation of nephrosclerosis is far from a simple subject. Too little accurate clinical or experimental data are available, and what exists cannot be presented here. In the attempt to study etiology, one must be influenced by personal observations but should also depend largely on an analysis of what the literature contains of the work of careful students of the condition. From such sources given in detail elsewhere[1] certain conclusions, especially as related to chronic kidney disease in childhood, may be quoted:

> When the literature is studied many references are found which stress hereditary influence. . . . There can be little doubt of a familial predisposition to chronic nephritis.
>
> Intra-uterine nephritis or nephritis may occur in very early life. It is possible that in some instances the end-results of this may become manifest in later childhood. That is to say, the damage is not sufficient to cause death at once, and enough functioning tissue remains to carry on until such time as greater demands are made on the kidney by such factors as increased body growth or the increased functional demand for excretion of waste products the end-result of tissue destruction by bacterial toxins which occurs during infections, or the elimination of endogenous and exogenous toxins and poisons other than bacterial which add their load to kidney function.
>
> It has taken the advent of the Wassermann reaction to prove that syphilis is an etiologic factor in few if any cases of nephrosclerosis and renal rickets. From a pathologic point of view, congenital syphilis can attack the kidney and cause damage, but it must be seldom that this injury results in nephrosclerosis.
>
> Acute bacterial infections, especially of a streptococcic nature, may in some cases injure the kidney and cause chronic as well as acute nephritis. Influencing this may be an hereditary predisposition to kidney disease. There remain other cases in which chronic kidney disease may be due to other than bacterial causes. Among the most interesting of these is the group of cases occurring in early childhood or infancy, of congenital anomalies of the kidneys or ureters, cystic kidney, obstruction, suppuration and hydronephrosis.
>
> Lead, alcohol, gout and other exogenous and endogenous poisons and toxins are seldom etiologic factors in nephrosclerosis in childhood.

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* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

* From the Children's Hospital Pediatric Research Foundation, and the B. K. Rachford Department of Pediatrics of the University of Cincinnati College of Medicine.

[1] Mitchell, A. G.: Nephrosclerosis (Chronic Interstitial Nephritis) in Childhood, with Special Reference to Renal Rickets, Am. J. Dis. Child. **40**: 101-145 (July), 345-388 (Aug.) 1930.

Many cases of nephrosclerosis have an insidious onset which cannot be related clinically to any known cause.

It is most important to emphasize that there is an hereditary predisposition to nephritis because it is in the presence of this that many other causes act after the manner of trigger mechanisms. It is on some such basis that there must be explained the effect of certain apparent causes of nephritis which act in some persons but have no effect in others.

While space allows little further discussion of the foregoing conclusions on etiology, certain phases of the relation of infection to chronic nephritis must be mentioned. If there is a causal connection between the so-called focal infection and nephritis in adult life, it is certainly seldom obvious in childhood. While children may suffer from infection which might be described as focal in character, many of the reported cases of chronic nephritis have occurred too early in life for such a cause to be operative. Furthermore, it seems difficult to bring out from the case reports or from personal observation that recognizable focal infection is present in such cases with any frequency or that it is more common in children with chronic nephritis than in others who have no symptoms of kidney disease. It would seem that such a type of infection if it acts does so in the presence of a constitutional hereditary weakness or tissue predisposition.

One other qualifying statement must be made. In the presence of chronic nephritis, one may search for evidences of infection but history of a past infection is in itself no proof that chronic nephritis is a consequence of it. An example is the acute nephritis following scarlet fever which, it is well known, often results in complete cure. At least in many cases no discoverable evidence of any residual kidney damage remains even when such cases are followed for periods of months or years. The same is true of acute glomerular (hemorrhagic) nephritis of a similar type, no matter what its apparent cause. In retrospect, however, a history of scarlet fever or some other infection may assume undue significance. One cannot always be sure in a given case that the acute infection did not merely take place in a patient who was already the subject of a chronic nephritis.

If high protein diets have an influence in producing chronic nephritis, this cause again does not appear to be clinically apparent in childhood. Then, too, in practically all cases one may dismiss the degenerative type of nephritis associated with arterial disease—the so-called cardiorenal syndrome.

SYMPTOMS

The onset and beginning of the course of nephrosclerosis may be insidious. The diagnosis may not be made at first because of failure of the development of characteristic symptoms or more particularly because of incomplete study and examination of the patient. Persistent anemia is not unusual and may be the first symptom to call attention to a chronic underlying factor. Differential diagnosis need not be dilated on except to mention that among the faulty diagnoses are diabetes insipidus made because of polydipsia and polyuria, and brain tumor made because of headache and vomiting. It has already been hinted that cystic disease of the kidney and chronic obstruction and infection of the urinary tract may be responsible for the same symptoms as nephrosclerosis and for the same reasons; namely, destruction of kidney structure and functional insufficiency.

The symptoms and examination of children with nephrosclerosis may be summarized as follows:

There is no difference in sex incidence; the average age at the onset of symptoms is about 7 years, but many patients have symptoms in early infancy; marked retardation of growth is present in almost all patients; mentality may be normal or above the average, but in some patients it is less than the average for the age; sexual development is frequently retarded in the patients past the usual age of puberty; polyuria and polydipsia are frequent and early symptoms; anorexia may be a marked symptom; headache and vomiting occur frequently; convulsions, uremic in nature, are sometimes early and often terminal symptoms; tetany is an infrequent symptom; edema, usually slight, is not a very frequent symptom; hemorrhagic manifestations may be present; albuminuric retinitis is frequent; anemia is very constant; pigmentation of the skin is not uncommon; circulatory disturbance is surprisingly infrequent; cardiac enlargement is common; sclerosis of the superficial blood vessels may be present: high blood pressure is frequently found when examination is made for it; when the urine is examined there is always found low specific gravity and albumin and, less frequently, casts and white and red blood cells; when kidney function tests are made marked renal insufficiency is usually discovered; genu valgum is a frequent manifestation in those patients who have bone changes.

Of peculiar interest is the occurrence of the bone changes that are manifest in some of the children with nephrosclerosis or chronic kidney insufficiency from some other cause. About seventy-eight cases of so-called renal rickets have been reported in sufficient detail for analysis. Clinically the bone changes resemble those of the usual infantile rickets. There may be enlargement of the epiphyses of the wrist and the costochondral junction, pigeon-shaped chest, bossing of the frontal and parietal bones and deformities of the extremities. The sudden or gradual onset of marked genu valgum is an especially pronounced symptom. By roentgenologic and histologic study the bone changes have been found somewhat different from those of infantile rickets in that the shafts of the long bones and the flat bones have greater translucence and a more spongy appearance. It is because of this as well as the obvious difference in etiology that some authors have objected to the term rickets as applied to the bone changes of chronic kidney disease. Linked, perhaps, to the underlying fault is the dwarfism, or infantilism, the latter term connoting the lack of sexual development in some cases.

THE DISTURBANCES OF GROWTH AND NUTRITION

Many of the symptoms and signs of nephrosclerosis are the same in childhood as in adult life. In all chronic diseases of early life, however, the final problem of greatest importance is the effect on growth and on future physical well being. In this light the problems of chronic nephritis in the young child have a significance somewhat different from those to be solved for the adult nephritic patient. The demands of a young body for growth are not similar either in nature or in magnitude to the requirements of an adult body for maintenance. Efforts for the solution of the problems of the young nephritic patient must be directed toward satisfying these demands for growth and maintenance in spite of the handicap of disease processes which inhibit the proper assimilation of food substances. There is need for a better explanation of the manner in which various factors of the disease not only contribute to a general state of ill health but also retard growth and development. This explanation may be sought for in the disturbances of the digestive system, in faulty assimilation of chemical substances in the tissues, or in an increased catabolism of formed tissue substances.

It is apparent that the metabolic processes of growth may be profoundly affected by the agents causing the nephritis as well as by the functional chemical changes consequent on the disease. Agents that cause nephrosclerosis may affect other organs as well as the kidneys, producing in them a sclerosis and inhibiting their expected development. With progression of the nephrosclerosis the diminution of the excretory power of the kidneys produces in the blood and tissues a piling up of waste substances, and these may in turn increasingly interfere with the chemical reactions necessary for the normal activity and growth of the body.

The state of undernutrition of the nephritic child is undoubtedly in large measure dependent on a partial starvation due to the anorexia which is nearly always present to a varying degree. This anorexia may be conditioned to some extent by the tendency to nausea and vomiting provoked by irritation of the central nervous system. Peters, Wakeman and Lee[2] found that in the vomitus of nephritic patients the chloride—both "free" and "combined" acid—was low, and it is therefore possible that a tendency to moderate hypochlorhydria may also contribute to the lack of appetite.

In nephritis with nitrogen retention there is a definite disturbance of carbohydrate metabolism. The fasting level of the reducing substances of the blood is slightly elevated and it has been shown by fermentation tests that the increased reducing power of the blood is practically all due to dextrose.[3] The blood sugar curves obtained after the ingestion of dextrose approach the type seen in mild diabetes;[2] but, as Linder, Hiller and Van Slyke showed by studies of the respiratory exchange during such tests that there is no fault in the ability of nephritic patients to burn sugar, it may be concluded that the prolonged hyperglycemia after the ingestion of dextrose is due to a retardation of the conversion of dextrose to glycogen. Even in normal subjects acid substances introduced into the body tend to cause glycogenolysis and hyperglycemia,[4] so it is easy to understand why there is an interference with glycogenic function in the nephritic patient who has a constant tendency to slight acidosis. It is a common clinical experience that the diabetic patient developing renal insufficiency with nitrogen retention becomes more refractory to the action of insulin. Also, in certain types of experimental nephritis and in experimental bacterial intoxications which cause nephritis in animals, it has been shown[5] that the power of insulin to reduce the blood sugar is markedly inhibited. The faulty synthesis of glycogen may constitute an important factor in the poor development and growth of the young nephritic patient, since glycogen is such an important constituent of muscle and so necessary for the normal function of muscle and other tissues.

Rather little is definitely known concerning the real efficiency of the total protein metabolism in nephritis in spite of the fact that clinicians are accustomed to attach great significance to such superficially demonstrable signs of disturbance of it as the elevated nonprotein nitrogen concentration in the blood, the changes in blood proteins, the albuminuria, and the variations in urea and ammonia excretion in the urine. Perhaps too much attention has been paid to the diminished ability of the kidneys to excrete waste nitrogenous substances, since in the past there has been a general practice of markedly limiting the protein intake in the diet. Peters and Van Slyke[6] state: "It is the belief of the authors that we have as yet no criterion for the renal state that requires protein restriction, and that the condition of the nephritic patients in general would be happier, the progress of the disease no more rapid, if their diets were regulated in accordance with the usual metabolic requirements of persons of their size, age and activity, with due regard to the state of their digestive organs and their general condition, and without regard to the logical but clinically unproved assumption that protein restriction should accompany retarded urea excreting ability." This statement seems particularly applicable to the chronic nephritis encountered in the very young child in whom the demands for growth will not and cannot be denied without tremendously handicapping all the physiologic processes of the body.

It is difficult to discover whether there is a greater catabolism than normal going on much of the time in the tissues of the nephritic patient, but there is increased catabolism at least during the frequent exacerbations of acute symptoms of the disease. Such exacerbations are seen especially after many mild infections and illnesses which would affect the normal child very little. Such factors as fever and bacterial intoxications accompanying even mild infections increase the metabolic rate, and with a diminished food intake due to anorexia and vomiting there is increased tissue destruction and protein wastage. This increase in tissue destruction not only contributes to a loss of body weight, which is difficult for the patient to regain in more normal periods, but it places on the kidneys additional burdens of excretion of nitrogenous and other waste products. As the waste metabolic products accumulate in the blood, they in turn contribute to increasing the tissue catabolism. One example of this has been cited; the effect of acidosis in increasing glycogenolysis. Acidosis also increases the splitting of certain organic phosphorus compounds of the blood and tissue cells[7] thus throwing more inorganic phosphoric acid into the circulation, to be added to the accumulating acids which the patient is obliged to dispose of. In this way there is set up a vicious cycle against which the patient adjusts with increasing difficulty as the disease progresses and when, with the years, the growing bulk of body tissue and the greater physical activities increase the waste products to be excreted by the kidneys.

The extreme effects of chronic nephritis on growth and development and nutrition are probably most in evidence in the cases designated as "renal rickets" or "renal infantilism." It is likely that in cases of chronic nephritis with lesser impairment of renal function one has to deal with general physiologic disturbances which are at least of the same direction as those observed in "renal rickets" even though these changes are of less magnitude. A summary of some of the chemical changes in the blood and in calcium and phosphorus metabolism reported in the literature on this subject was included in the review of nephrosclerosis in childhood previously mentioned.[1] In that survey of the mineral metabolism studies reported by a number of workers, it was pointed out that in the cases of renal rickets, and also in cases of chronic nephritis without definite signs of faulty bone development, there was evidence of faulty absorption and storage of calcium and phosphorus in the body. Analysis of the available data from these studies gave rise to a view of the etiology of renal rickets which was summarized thus:

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[2] Peters, J. P.; Wakeman, A. M., and Lee, Carter: Total Acid-Base Equilibrium of Plasma in Health and Disease: XI. Hypochloremia and Total Salt Deficiency in Nephritis, J. Clin. Investigation **6**: 551 (Feb.) 1929.

[3] Linder, G. C.; Hiller, A., and Van Slyke, D. D.: Carbohydrate Metabolism in Nephritis, J. Clin. Investigation **1**: 247 (Feb.) 1925.

[4] Elias, H.: Ueber die Rolle der Säure im Kohlenhydratstoffwechsel: Ueber Säurediabetes, Biochem. Ztschr. **48**: 120, 1913.

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[6] Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams and Wilkins Company, 1931, p. 689.

[7] Haldane, J. B. S.; Wigglesworth, V. B., and Woodrow, C. E.: The Effect of Reaction Changes on Human Inorganic Metabolism, Proc. Roy. Soc. Med., Series B **96**: 1, 1924. Kay, H. D.: Changes in the Phosphorus Partition in Human Blood During Ammonium Chloride Acidosis, Biochem. J. **18**: 1133, 1924.

> In a type of nephritis characterized by a relative or absolute inability of the kidneys to excrete the waste endogenous phosphates from the body, there exists considerable evidence that such waste phosphates may be excreted through the intestinal mucosa instead of from the kidneys. It has been repeatedly demonstrated that an increased concentration of phosphates in the food—that is, in the intestinal contents—may interfere with the absorption of calcium, presumably through the formation of insoluble calcium phosphates. An hypothesis is offered that in renal rickets, such a shift of the excretion of endogenous phosphorus to the intestines occurs, and that the concentration of phosphorus in the intestine thus increased so blocks the absorption of calcium from the food that the child suffers a true calcium starvation.

Further studies of the total mineral metabolism in chronic nephritis are greatly needed to explain the disturbances which are responsible for the faulty skeletal development and poor growth which may accompany the disease.

SUMMARY

This paper deals primarily with nephrosclerosis in childhood. In studying the etiology of this condition it is found that there is a familial and an hereditary predisposition to it; that intra-uterine nephritis or nephritis in very early life may occur; that syphilis has little if any effect in causing chronic kidney disease in early life; that acute bacterial infections, especially of a streptococcic nature, may cause injury to the kidney resulting in chronic disease; that exogenous and endogenous poisons and toxins are seldom etiologic factors in nephrosclerosis in childhood; that focal infections seem to have little to do with chronic kidney disease in childhood; that high protein diets are not operative in producing nephritis in early life.

None of the evidence warrants too great protein restriction in children suffering from chronic nephritis, but the better treatment consists in planning the diets to meet the usual normal requirements as far as possible.

In the discussion of the symptomatology, special mention was made of the peculiar bone changes which occasionally occur and of the undernutrition and dwarfism which is a common accompaniment of chronic kidney disease in childhood.

We have attempted to point out certain directions in which further metabolic studies are needed in order to gain a better understanding of the marked disturbances of growth and skeletal development which accompany chronic nephritis in childhood.

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NEPHROSIS IN CHILDHOOD *

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In the arrangement of this program, nephrosis was included among the renal diseases. The term[1] was introduced by von Müller to designate histologic changes in the kidneys which manifested themselves in a primary degenerative process of the tubular epithelium in contradistinction to inflammatory changes in interstitial tissue and glomeruli. This is not the place to reiterate the various objections raised against the name and its significance. Some pediatricians prefer the designation "tubular nephritis." The changes in the kidneys are accompanied by a rather definite clinical picture. Typical cases of the disease do not seem to be common in the adult, a fact emphasized by Volhard at the symposium on renal diseases at the University of Minnesota in 1930. The condition seems to be less uncommon among children. Only unmixed cases concern us here, and there are a sufficient number of well authenticated cases, accompanied by reports of careful necropsy, to set them aside as examples of an entity.

The changes in the tubules vary in intensity and distribution; in pronounced cases that come to necropsy they are widespread. They vary from cloudy swelling to necrosis of the cells and may be severe enough to overcome even the regenerative powers of the tubular epithelium leading to secondary changes with formation of scar tissue. Among children such secondary lesions have been observed only to a very limited degree.[2] Of interest is a case which started in infancy, coming to necropsy after about seventeen years without secondary changes in the kidneys.[3]

Early in the consideration of this subject, no less an authority than Löhlein[4] objected to the conception of a primary degenerative lesion of the tubules, claiming that such a lesion is always initiated by a glomerular change, although in his rather well known case 25 he was unable to demonstrate any trace of such a glomerular lesion with the methods then at his disposal. The views of Löhlein were accepted by some pathologists and more recently studies in this field have been taken up again by Bell[5] and Bell and Clawson[6] with the Mallory-Heidenhain azan-carmine staining method. With this stain the capillary basement membrane is outlined sharply so that it is easy to distinguish between cells on the inside and on the outside of the capillaries. In pure lipoid nephrosis a varying increase in the number and size of the glomerular endothelial cells and uneven thickening of the basement membrane are described. Bell regards lipoid or genuine nephrosis as a form of glomerulonephritis in which the glomeruli are injured, but their capillaries are only partially obstructed, so that they continue to function, and tubular atrophy does not occur. Bell was kind enough to examine sections from one of my cases. The patient was a boy, aged 2½ years, who died during an attack of erysipelas. Nephrosis started insidiously and had lasted only one and a half months when the erysipelas began.

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* From the Section on Pediatrics, the Mayo Clinic.

* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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[3] Ehrich, Wilhelm: Lipoid Nephrosis of Unusual Duration: II. Pathologic-Anatomic Report, Arch. Int. Med. **45**: 749-759 (May) 1930.

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[5] Bell, E. T.: Lipoid Nephrosis, Am. J. Path. **5**: 587-622 (Nov.) 1929.

[6] Bell, E. T., and Clawson, B. J.: Experimental Glomerulonephritis in a Monkey, Am. J. Path. **7**: 57-61 (Jan.) 1931.

These changes are not intense and are not demonstrable in all glomeruli, although the tubular lesion is uniform and pronounced. Furthermore, it is not easy to decide whether there is definite increase in the number of endothelial cells. It has been stated that in the normal subject the endothelial cells make up about a tenth of the total number of glomerular cells, whereas Wilbur[7] has stated that their number is about a quarter to a sixth of the total. Moreover, it seems that more intense injuries of glomeruli may be found in nephritis, with much less injury of tubules.

The question, therefore, whether the glomerular changes in a case like this can adequately explain the widespread tubular disintegration seems difficult to answer. That some of the clinical manifestations are of extrarenal origin has been recognized generally. Certain authors have concluded that the renal changes are entirely secondary. Thus, alteration of the lipoid metabolism was given as the primary factor[8] or general metabolic disturbance with special reference to the thyroid gland. The views of Marriott and Clausen,[9] that nephrosis is to be considered a general systemic disease, has again been emphasized by Wolbach and Blackfan. It is stated that this condition represents an entity in childhood, and that the pathologic changes in the kidneys do not afford an explanation of the significant physiologic disturbances of the disease. These authors deplore the use of a name implying renal origin without offering a substitute. Until knowledge is further advanced, it may be well to adhere to a name designating definite histologic changes of an organ which, by the alterations of the morphology and chemical nature of its product, contributes something definite to the clinical picture.

Perhaps the most striking clinical feature of the disease is edema, which can reach extreme degrees. In this edema not only skin and muscles but various viscera can participate, and the serous cavities may contain much fluid, particularly the peritoneum. All these effusions are characterized by a low content of protein. The parts of the body which do not communicate with ingested water must get it from the blood. In the transportation and storage of water many factors enter into consideration, and in most instances probably several, in a hitherto bewildering array of combinations, the water exchange being intimately connected with distribution of electrolytes and colloids as well as perhaps with changes in the colloids. Aside from the forces governing the distribution of water in polyphasic colloidal systems of different concentrations, accepting these solutions as freely miscible, often membranes are interposed, and these membranes can be partially permeable to various constituents. Many of these factors have been well considered in a review by Loeb,[10] published in 1923. It remains to touch briefly on some more recent work. The barrier between blood and tissues is formed by the capillary walls. With the exception of those of liver and intestines they have been regarded as practically impermeable to proteins. This view has been challenged[11] and, if the challenge is valid, conceptions of edema based on this impermeability of capillaries to protein will have to undergo some modifications quantitatively if not qualitatively. Unpublished filtration experiments with the living mesentery seem to invite caution in this regard. The existence of a hormonal influence on the water balance can hardly be doubted, but this problem will not be considered here. The Gellhorns[12] showed an influence of inner secretory substances and toxic agents on the permeability of muscle membrane to sugar. Experiments on the permeability of living or surviving membranes, such as skin muscles of frogs, or the cornea and iris and the choroid plexus of rabbits,[13] indicate directed permeability in part possibly dependent on the life of such layered membranes to which body membranes may belong. Wertheimer found, for instance, that water from an isotonic solution of sodium chloride passed through the skin of frogs to an isotonic sodium citrate solution and away from an isotonic rhodanate solution. It passed through more readily to sugar solutions than to a sodium chloride solution of comparable concentration. In other words, examples of so-called anomalous osmosis seem to become numerous; that is, movement of water not in agreement with the accepted laws of osmosis.

Some of these results may perhaps be explained by the action of electrical forces. Such forces are at play, for instance, in the adsorption as well as in the so-called Donnan effect, the relative importance of which can hardly be evaluated in complicated systems.[14] Within recent years the electrostatic forces in the organism have received considerably more attention, and in these studies the behavior of dyes has assumed importance.[15] Keller,[16] on the basis of numerous studies in plants and animals, advanced the hypothesis that water may pass to regions or points of relatively greater electronegativity, that is, to the relative cathode. With dyes, such relative cathodal regions can be distinguished, indicating in this manner possible waterways. Some experiments[17] were conducted in order to see whether the intradermal layer of the skin of man could be distinguished by injecting dye in 0.5 per cent sodium chloride solution intradermally and noting the time of its disappearance. The dyes were selected from a list given by Keller as having been tested on certain organs of *Daphnia magna*. As is often the case, the first experiments were rather promising. The cathodal fluorescein (in watery solution this dye migrates to the anode) disappeared at about the same time as did the bleb, whereas the anodal neutral acriflavine remained discernible in the skin for about five days. On the other hand, cathodal dyes such as eosin and acid fuchsin, and anodal dyes such as basic fuchsin, neutral red and methylene blue did not fall into line. As is well known, other factors, particularly the degree of the dispersion under the conditions of the tests, enter into consideration. The cathodal alkaline blue remained more than three months, whereas the congo red, also cathodal, disappeared in about seventy-two hours. Both are coarsely dispersed. It is of interest that congo red, in some cases of edema, including edema of nephrosis, remains discernible at the place of injection a week or longer. It may well be that further investigations in this direction will give valuable information.

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Within the last few years, advances made by physical chemists in diffusion and ultrafiltration have shown that much is still to be learned in rather simple systems.[18] The complexity of the forces governing the water exchange in the organism are being realized, and investigators are becoming more cautious with theories of edema. A satisfactory theory of edema must be able to explain the production, maintenance and release of edema, and no such theory exists today.

The diagnosis of edema in the pitting state offers no difficulty, but when this happens much fluid has accumulated already. Rather sudden increases in weight can arouse suspicion. The elastometer of Schade[19] can detect these so-called preedematous states, or it can be demonstrated by the very ingenious and valuable bleb test of McClure and Aldrich.[20] Often these tests run parallel, but measuring different phases of edema they need not do so. Various factors have to be considered in the bleb test also,[21] but it seems to be dependent largely on the avidity of the epidermal skin for water.

With the disappearance of edema, a high degree of emaciation may become evident.

The urine in nephrosis is reduced in amount, is of high specific gravity and often contains albumin in large amounts. Most of the urinary protein is often serum albumin, but the globulins may be preponderant.[22] It seems that the presence of hepatic protein has to be reckoned with, and perhaps also that of renal protein.[23] The urine is poor in chlorides. Casts of various descriptions are to be found, at times doubly refractile lipoids, and not infrequently a rather large number of leukocytes, although the urine is sterile. No satisfactory explanation exists for the presence of these leukocytes. Helmholz and I[24] found leukocytes in the urine of rabbits after intravenous injections of concentrated solutions of sugar. Erythrocytes in significant numbers are absent.

Congo red injected intravenously passes rapidly in the urine.[25]

Examination of the blood is valuable. The blood proteins are reduced in amount, with a reversal of the albumin-globulin ratio. The globulins, and particularly the fibrinogen, may be increased. This reduction of protein, particularly absolute reduction of the albumin fraction, has been brought into relation with the appearance of edema.[26] Epstein stated that the kidney becomes permeable to blood proteins and so depletes the blood of protein, particularly of serum albumin. The clinical picture of nephrosis results from this depletion, concomitant with alterations in exchange of lipoids. Thomas, Schlegel and Andrews stated that the permeability of the kidney for blood protein may be initiated by the entrance of liver protein into the circulation. Barker and Kirk, following Leiter,[27] remove the plasma from the blood of dogs, reinjecting the erythrocytes in Locke's solution. On frequent repetition of this procedure (so-called plasmaphaeresis[28]) the content of protein in the blood is diminished, particularly the content of albumin. Edema develops, and later albuminuria; granular casts and fat droplets appear in the urine, and in sections degeneration of the renal tubules is seen. Here there are two conflicting conceptions. In one instance the albuminuria, however induced, is the cause of the depletion of protein in the blood; in the other, the depletion of protein in the blood produces the albuminuria. Bennett, Dodds and Robertson[29] observed cases of edema in which there was similar reduction of blood proteins but no renal injury. That some relation exists between lowering of values for blood protein and edema seems rather certain, but it cannot explain edema alone, for such changes in blood chemistry may persist for some time after the disappearance of edema.[30]

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The next striking change in nephrosis is the increase of lipoids in the blood. Usually fat, fatty acids, lecithin and cholesterol run parallel, but not necessarily.[31] The lipemia may be of sufficient degree to be detected in examination of the eyegrounds. Most authors confine themselves to determination and discussion of values for cholesterol, which may be increased to more than five times normal. This increase has been brought prominently in causative relation to edema. The data on increase and decrease of edema with changes in excretion of cholesterol in the urine do not warrant any definite conclusions; neither can the cholesteremia explain the albuminuria.[32] Nonprotein nitrogen is not increased, but transitory rises seem to occur. The concentration of sugar is often at the lower limit of normal. The value for calcium is often rather low, probably in relation with the lowered content of protein.[33] The content of chloride may be relatively low or it may exceed the normal, and without constant accurate relation to either the edema or the urinary output.

The problem of blood volume and hydremia is too complicated for consideration here. More than moderate anemia can occur later in the disease. The edema fluid is relatively rich in chlorides and phosphates, it is more alkaline than the blood, and it has an appreciable buffer value for acids.[34] The calcium content is not low even if tetany has been reported.[35] It is clear, whereas the ascitic fluid is usually turbid; otherwise the edema fluid and the ascitic fluid are about equal in composition. These fluids deserve more intensive study.

The circulatory apparatus is mainly noteworthy for the tendency to low arterial blood pressure. Transitory moderate rises in blood pressure seem to be possible. Cardiac failure seems also to be possible, in part at least due to embarrassment of the heart by accumulation of fluid in the thorax and abdomen or to a break in the general circulation.

Usually the sensorium of children is free; indeed, a number of the patients have impressed us at the clinic as being unusually alert. It seems that manifestations attributable to edema of the brain, so-called pseudouremia, can occur; such manifestations are headache, vomiting, convulsions and stupor. But such attacks are not a common feature. The disease may last from several months to several years. In one of our cases the disease lasted, off and on, for about seven years, the patient now being in good condition. Even after seven years occasionally there was some albuminuria, but the changes in the blood had disappeared; the volume of the urine was normal, and it was usually free from albumin. The patient excreted extra water as well as salt promptly, and the bleb test and the elastometer test returned to normal. These are the rigid requirements for determining whether or not cure has taken place.

The mortality is rather high. For instance, ten of twenty-one patients of Wolbach and Blackfan died. Of the twenty-six patients of Davison and Salinger, six died; of the remaining twenty, eight still had the disease in active form at the time of the report; six had recovered, and five others had been well for more than seven years.

A few words about the etiology must suffice. In many cases the onset is insidious, and even a carefully taken history cannot establish any connection with initial infection, although this does not preclude such infection. A number of authors give infections a prominent place among the causes, particularly infections of the upper part of the respiratory tract. With regard to infections of the nasal sinuses, my experience is rather more like that of Davison and Salinger, and Wolbach and Blackfan, in whose series such infections did not seem to play a prominent part. This question of the part played by infection needs further study. It certainly cannot be dismissed lightly even if it cannot always be traced. In animals renal lesions similar to those seen in nephrosis can be produced by various poisons, particularly uranium and mercuric chloride; the latter also produces profound changes in the convoluted tubule in man. Further consideration of the etiology would lead too far into the field of speculation.

In a brief review of the course of the disease, it is very important to keep in mind the possibility of spontaneous fluctuations with their striking variation of edema and of fluid output. As in other diseases, one examination may give an erroneous impression, just as one exposure on a cinema reel would be insufficient to give the desired sequence. The greatest danger to such patients is intercurrent infection. Prominent among these infections are erysipelas and peritonitis. The latter is mostly of pneumococcic or streptococcic origin; in fact, these organisms have been isolated from the blood.[36] Any infection is to be viewed with alarm; for instance, infection of the upper and the lower portions of the respiratory tract, or of the skin. Such infections are not always fatal.[37] Indeed, sometimes they may initiate striking improvement.[38] Neither is it necessary to hesitate with essential surgical intervention. For instance, good results were observed following necessary appendectomy in two cases, in one of which stubborn edema was influenced beneficially by seeping, and perhaps by the operation. Fleischer and Loeb [39] have shown experimentally that operations, even outside of the peritoneal cavity, can influence absorption of fluid from the peritoneal cavity. Treatment aims at reduction of accumulations of fluid in the skin and elsewhere; not only does this seem to benefit the patient generally, but it may possibly diminish the danger of infection. First of all, since it has been shown accurately in some cases that administration of sodium chloride increases the edema, it is well to avoid its addition in food. Not only sodium chloride but also other sodium salts can induce increase of edema. Others have seen, and so have I seen, beneficial results from a diet

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high in protein; that is, from 2 to 3 Gm. of protein for each kilogram each day.[40] The introduction of this dietary method is due to Epstein.

Restriction of intake of fluid also seems desirable, although this need not go so far as to cause undue distress. Given at the proper moment, increase of intake of fluid may be followed by output of a greater quantity of fluid than that taken in. It is not always easy to induce diuresis in these cases, and sometimes it could not be induced by any means employed. However, generally I have had good results from several measures, such as administration of ammonium nitrate followed by injections of mersalyl; oral administration of urea, or of large doses of thyroid extract also have given good results.[41] Administration of magnesium sulphate gave good results at times also. Parathyroid extract and lately calcium gluconate have been recommended.[42]

I have had cases that were refractory to urea, and it seemed that, when this happened, there was no laxative effect on the bowels. Similarly, when the dose of thyroid extract that was given did not influence the intestinal movements, it had no diuretic effect. My experience **is** far too limited, however, to permit any generalization.

In cases in which intense edema resists treatment it is permissible to remove some of the fluid by opening the skin under proper precautions. Perhaps the best method is the insertion of tubes, as has been recommended for cardiac edema by Bland and White.[43] Sometimes tapping of the abdomen or the thorax can hardly be avoided and should not be delayed too long.

Until all data are obtained I usually keep the children in bed. They receive a so-called basal nephritic diet; that is, a diet poor in salt and protein, and in which the fluid portion is restricted. If the edema is not excessive and not progressive, rest in bed does not seem necessary. However, it must be kept in mind that, as the patients have freer communication with other persons, the chances for infection may increase. In some cases, some muscular activity seemed to be of benefit.

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Successions of Hypotheses.—A discipline like medicine may be regarded therefore as episodic, episode being linked to episode by no conceivable continuity of principle. Sharp breaks in the continuity of the content of interest are disclosed, so that it becomes (wherever this particular phase of the matter arises) impossible to speak of continuity either in subject matter or in concepts. The problem, viewed from this angle, is not in medicine to invent, forcibly, a concatenated thread along which these episodes are strung and which gives the appearance of consistency, in a historical sense, to varied phenomena; it seems more profitable to find whether failing this, if failing it be, is peculiar to the study of disease, whether in other scientific disciplines there may not likewise be similar discontinuities, and whether this appearance is not common to them all. In the sense that there have been in all of them successions of hypotheses, cultivated for a time fruitfully and then discarded for others more profitable, the general contention seems to be justified.—Cohn, A. E.: Medicine, Science and Art, Chicago, University of Chicago Press, 1931.

ACUTE GLOMERULAR NEPHRITIS IN CHILDREN

TREATMENT OF THE CEREBRAL MANIFESTATIONS[*]

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AND
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Acute glomerular nephritis, the form of nephritis encountered most frequently in childhood, is preceded usually by an acute illness commonly associated with the hemolytic streptococcus.[1] Following recovery from the acute infection, a period of from several days to two or three weeks often elapses before the onset of the renal disturbance. The child may be up and about and even return to school, when puffiness of the eyes, especially in the morning, directs attention to the condition, or hematuria may be the first abnormality noted. In many cases a certain amount of pallor and the continued presence of blood in the urine are the presenting signs, which may persist for a period varying from four to six weeks, or even longer. The prognosis in this form of nephritis is good as regards life and freedom from permanent sequelae, in the majority of instances.

However, there may develop, in children suffering from acute glomerular nephritis, a more alarming picture characterized by vomiting, headache, visual disturbances, frequently a slowing of the heart and respiratory rates, coma, convulsions and ultimately death. This syndrome is variously termed uremia, pseudo-uremia, or convulsive uremia.[2] As development of these symptoms is unrelated to the retention of nitrogenous end-products and, as will be shown later, is the result of a demonstrable fundamental cause, we believe the term uremia is a misleading one and prefer to speak of this symptom complex as the cerebral manifestation of acute glomerular nephritis.

The systolic and diastolic pressure of the blood is elevated to a greater or less degree in nearly all cases of acute glomerular nephritis,[3] but in patients with cerebral manifestations the blood pressure becomes elevated to a high degree. While in the majority of cases it seldom rises over 120 mm. of mercury, a rise above this level, particularly a steady increase, usually denotes the onset of cerebral symptoms. As the blood pressure rises above 140 mm. of mercury, the patient may vomit or complain of headache. A further rise indicates the danger of coma or convulsions. Of no less importance than the degree of elevation of the blood pressure is the *rapidity of its rise*.

Edema is present in patients with acute glomerular nephritis but not as the marked pitting edema of acute tubular nephritis or of certain forms of chronic nephritis. One gains the impression that the 4 or 5 pounds of edema fluid which these patients harbor is held in part as intracellular water rather than shifting intercellular fluid in the subcutaneous tissues or body cavities. This type of firm, presumably intracellular edema is found in various organs, among them the brain. In cases observed by us at necropsy the brains have weighed from 20 to 30 per cent more than normal for the ages of the patients, the convolutions have been flattened, the surface of the brain has been firm and tense, and at the base there is invariably found the so-called medullary cone phase, produced when the medulla is forced into the foramen magnum as the result of rapid increase in brain volume (figs. 1 and 2).

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[*] From the Department of Pediatrics, Harvard University Medical School, and the Infants' and Children's hospitals, Boston.

[*] Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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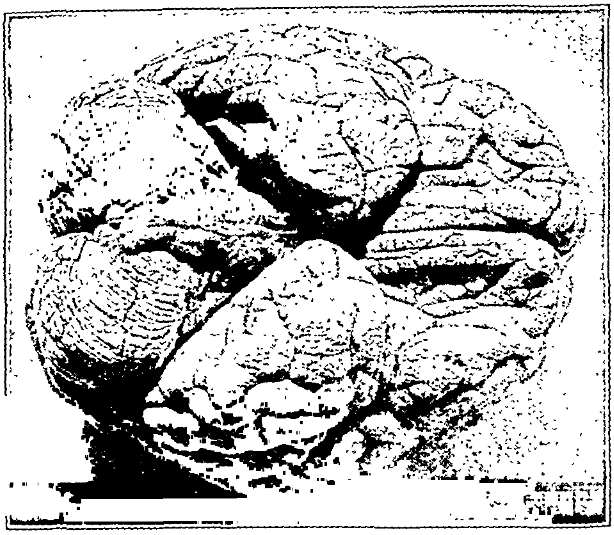

Fig. 1.—The brain of a child who succumbed to acute glomerular nephritis with cerebral manifestations. Evidence of cerebral edema is found in the medullary cone, appearing as a depression about the brain stem and corresponding in outline to the foramen magnum.

The presence of cerebral edema has been amply confirmed at necropsy and seems unquestionably the cause of the development of the cerebral manifestations. Whatever the mechanism of the production of the rise in blood pressure, the parallelism of the rapidity of rise and severity of symptoms exists. Likewise, diminution in severity of symptoms is associated with a fall in blood pressure. The development of cerebral symptoms may be regarded as an incident in the course of the nephritis, apparently not dependent on the amount of blood in the urine or on the duration of the kidney symptoms, and independent of demonstrable retention of nitrogenous products.

Of the therapeutic agents that we have employed in the treatment of patients exhibiting cerebral manifestations with acute glomerular nephritis, magnesium sulphate has proved to be of most value. Magnesium sulphate given by mouth and, if necessary, by rectum usually suffices to control and relieve the cerebral symptoms if the administration of the salt is begun with the appearance of an elevated blood pressure during the stage of headache and vomiting and before the development of coma and convulsions. Very large doses of the drug are necessary. As much as from 1 to 2 ounces (from 30 to 60 cc.) of a 50 per cent solution by mouth or by rectum given every four hours is often required in order to secure the desired effect. As pointed out by Aldrich, magnesium sulphate in children with the hemorrhagic type of nephritis does not cause diarrhea even when massive doses are used. Rarely are there more than two or three stools daily until after the prophylactic result is obtained. The action appears to be one of general dehydration with resultant diminution of cerebral edema. Evidences of improvement are relief of cerebral symptoms and fall in blood pressure. The improvement is gradual and is seldom obtained without loss of body weight (fig. 3). The medication may be and should be continued until the blood pressure approaches a normal level.

In comatose patients or in those with convulsive twitchings, the action of magnesium sulphate administered by mouth and by rectum is not sufficiently rapid to prevent a fatal outcome. In 1923 it was shown that prompt relief of cerebral symptoms and rapid fall in blood pressure could be obtained by the injection, intravenously, of a 2 per cent solution of magnesium sulphate ($MgSO_4,7H_2O$), or a 1 per cent solution of the anhydrous salt.[4] This solution should be injected slowly, from 3 to 4 cc. a minute, by gravity into the vein of an arm, while the blood pressure is followed on the other arm. As the injection proceeds, the patient may perspire freely, vasomotor flushes run over the body, twitching ceases, and blood pressure gradually falls. The amount required has been, in our cases, about 10 cc. per kilogram of body weight. Should signs of respiratory depression develop from the too rapid administration of the salt, the injection should then be stopped for a few minutes. If the depression becomes alarming, it can be relieved promptly by parenteral injection of calcium chloride (from 2 to 5 per cent solution). This never has been necessary in our experience (fig. 4).

In 1928, the observation was made that a 25 per cent solution of magnesium sulphate, when injected intramuscularly, had almost as prompt an effect in relieving cerebral symptoms and in reducing blood pressure as did the intravenous injection of a 1 per cent solution of the anhydrous salt. Since then, we have employed this intramuscular injection as the method of choice when the presenting symptoms became so severe as to indicate emergency treatment. By way of illustration, with the blood pressure continuing to rise and with the develop-

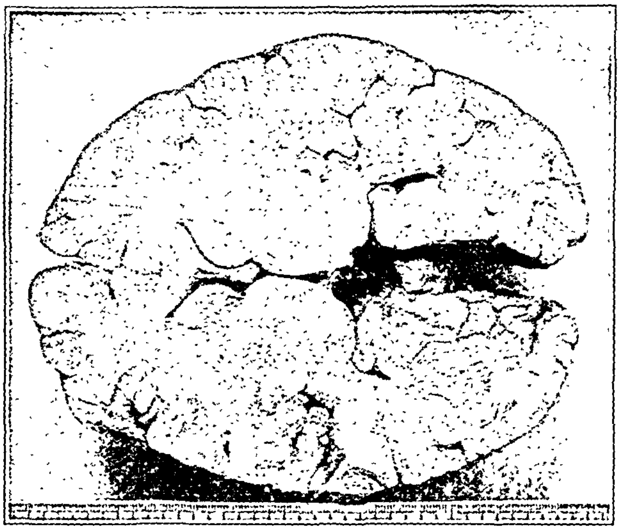

Fig. 2.—Section of the brain of a child who succumbed to acute glomerular nephritis with cerebral manifestations. Cerebral edema is manifested by the flattening of the convolutions and the small compressed ventricles.

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ment of cerebral symptoms, despite large amounts of magnesium sulphate by mouth and by rectum, a 25 per cent solution of magnesium sulphate is given intramuscularly. The amount used is determined by the weight of the patient. It is seldom necessary to use more than 0.2 cc. per kilogram, although in exceptional instances we have used 0.4 cc. per kilogram of body weight. The effect as measured by fall in blood pressure and diminution in cerebral symptoms is obtained usually in from fifteen to thirty minutes and is analogous in all respects to the results derived from the intravenous injection. If results do not follow the first intramuscular injection, a second can be made with relative safety after a period of two or three hours. In some cases repetition of the intramuscular injection may be required several times before the blood pressure remains low and the cerebral symptoms disappear.

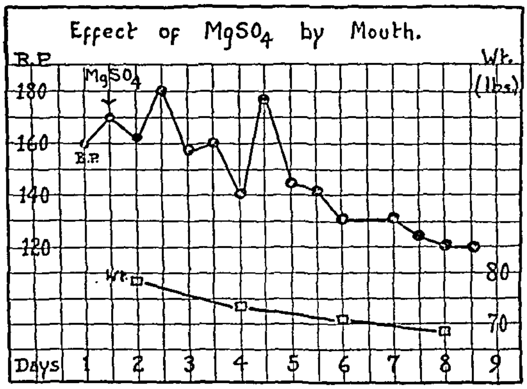

Fig. 3. (patient J. Q.).—The gradual response of cerebral manifestations of acute glomerular nephritis to the administration of magnesium sulphate in 50 per cent solution, by mouth and by rectum. The fall in blood pressure is associated with cessation of cerebral symptoms and is accompanied by loss of body weight.

No difficulties have been encountered from the intramuscular injection of magnesium sulphate either as regards alarming toxic symptoms of the drug or as regards local irritation or sloughs. Since the introduction of this mode of administration of the drug, patients who developed cerebral symptoms have responded to the intramuscular injections in conjunction with the use of the salt by mouth and by rectum, and in no case has recourse to intravenous injection been necessary (fig. 5).

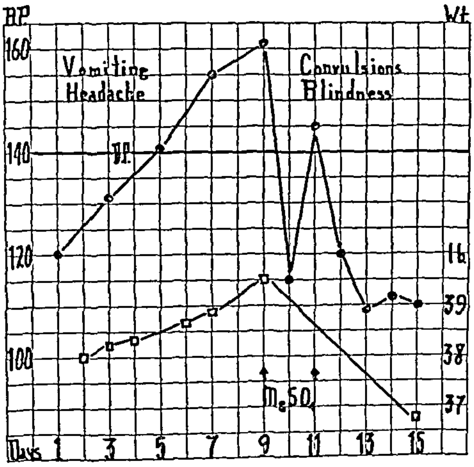

Fig. 4 (patient R. K.).—Rapid temporary relief of the cerebral manifestations of acute glomerular nephritis obtained through the administration of anhydrous magnesium sulphate (1 per cent solution) intravenously. Recurrence of alarming symptoms requires a repetition of the treatment, and permanent relief is obtained only by the continued use of the drug by mouth and by rectum.

The mechanism of the action of magnesium sulphate administered in the dosage we have used is not entirely clear. The anesthetic and depressant effect described by Meltzer[5] is obtained only with larger dosages; it seems certain that the narcotic action cannot account for the entire effect obtained in our cases. Lazard,[6] also, has found a dosage very similar to that which we use effective in the treatment of eclampsia. A primary consideration in the understanding of the mode of action of the magnesium sulphate must be the determination of the relationship of the increased intracranial pressure to the elevated blood pressure. Clinical observation records only the close association of the two factors yet suggests that the elevated blood pressure is caused by the increased intracranial pressure. On the contrary, an opposite relationship has been suggested in which constriction of the blood vessels is primary, producing both elevation of the blood pressure and cerebral edema. Conceivably, magnesium sulphate might, through acting as a capillary dilator, affect the blood pressure and thus the cerebral symptoms. The possibility of the effect being due to the osmotic action of hypertonic solutions seems remote in view of the hypotonic concentration used for intravenous injection, and the small amount of the salt required for effective action following intramuscular injection.

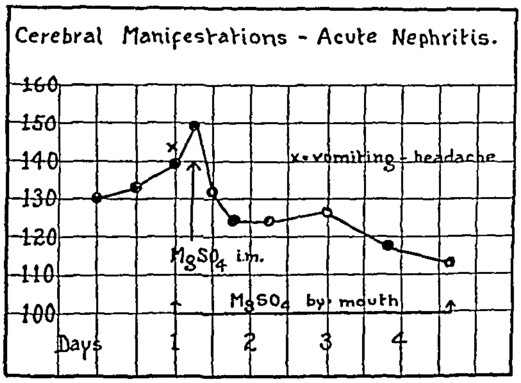

Fig. 5 (patient C. M.).—A gradual increase in blood pressure is associated with the appearance of cerebral symptoms. Magnesium sulphate in 25 per cent solution given intramuscularly causes a rapid fall in blood pressure and cessation of cerebral symptoms. The beneficial effect is sustained by the continued use of 50 per cent solution of the salt by mouth and by rectum.

The lack of a satisfactory explanation of the action of magnesium sulphate does not, however, detract materially from its value as an effective therapeutic agent for use in the treatment of the cerebral manifestations of acute glomerular nephritis. It must be emphasized that, following the use of either the intravenous or the intramuscular injection of magnesium sulphate, it is necessary to continue large doses of the salt by mouth and by rectum. If the water retention and the cerebral edema are not reduced by the oral administration, the blood pressure rises again and repetition of the intravenous or intramuscular injection may be required. These modes of administration are to be regarded as emergency measures only and should not take the place of the dehydrating effect of magnesium sulphate when administered by mouth or by rectum.

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SOURCE AND RÔLE OF URINARY PROTEIN IN NEPHRITIS *

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It seems advisable from time to time to emphasize a point of view in nephritis, not because it is entirely new or because it is not well recognized in certain quarters, but because it is not generally known and accepted, and because, in spite of a decade of well controlled and confirmed work, the old view of the rôle of the kidneys in nephritis still dominates to a great extent the practice and theory of medicine.

The studies in this paper represent work on the source and nature of urinary proteins and lead to a possible explanation of the mechanism of proteinuria as a detoxifying process, as well as an evaluation of the manifestations of nephritis due to extrarenal factors.

It was formerly believed that in nephritis the kidneys, because of inflammatory or degenerative changes, became incapable of excreting water and the water soluble metabolites and of retaining within the circulation the proteins of the blood, and that the clinical aspects of nephritis were due to the action of these retained substances. Extensive experiments and observations, however, show that this cannot be the case. Pure renal insufficiency does not cause the picture of nephritis. Experimentally, animals with all or a large portion of kidney tissue removed live from five to ten days, dying without increased blood pressure, convulsions, coma, or any of the classic manifestations of uremia. Likewise in man, when, through error, the functioning kidney is removed or as the result of renal calculi, catheterization or other manipulations permanent anuria results, the patient dies with low blood pressure and progressive weakness, but not uremia.

This means that a better explanation for nephritis must be sought. A fair and representative statement of the present situation is that the kidneys stand in a secondary relationship to the tissues in nephritis. They excrete water and metabolites when they are available and, normal or damaged, they exert a selective action on the proteins of the blood, retaining within the circulation those which are normal to that organism and excreting those which have become so altered as no longer to be the normal serum protein.

This requires some further elucidation. The old point of view requires one to visualize a kidney so damaged that it will no longer excrete water, and the very small molecules of urea, and uric acid, as well as the larger metabolites, but which will freely pass such enormous aggregates as globulin and albumin. Water metabolism, including the question of anuria and diuresis, and edema, are the simplest of these to understand, and it is known that a nephritic kidney, no matter how advanced the disease, will excrete available water, and that anuria and edema are not at all due to renal failure but to the primary claim of the tissues on water. As long as the tissue thirst remains unsatisfied, there will be no free water in the circulation for the kidneys to excrete. When, through improvement in tissue conditions, water is released, it is returned to the circulation and promptly excreted. The work of Aldrich and McClure[1] in demonstrating the rate of absorption of fluid from the skin in normal and edematous states is the simplest and most perfect proof of this mechanism.

Likewise, the behavior of the kidney toward the metabolites and electrolytes of the blood depends, like a conditioned reflex, completely on the state of the tissues. We speak freely of blood chemistry, have ascertained the normal limits in the blood for numerous substances, and consider figures in excess of these limits unfavorable or dangerous. It is to be hoped that in doing so we recognize that we are interested solely in tissue chemistry—in the concentration of these materials in the cells—and trust that the blood readings give accurate information of cell chemistry. Generally this is true, and in slow or long continued conditions our trust is justified. Situations, however, causing rapid and wide fluctuations demonstrate the fallacies of the orthodox point of view and prove the truth of the theory. When, as the result of an accident, such as an injury, an operation, an anesthetic, acidosis or the like, an individual potentially nephritic—that is, with some degree of vascular, renal, and tissue deterioration—goes suddenly into a uremic state, blood chemistry readings of only moderate height will drop, during the time when the clinical condition is rapidly becoming worse, to normal or low normal figures, and normal figures will temporarily drop quite low. Then, during a period of uremia, the blood readings will increase, until they reach the level usually seen in uremia. If, however, the patient recovers, and if this recovery is rapid, there is seen, during a period of distinct clinical improvement, a tremendous rise in blood chemistry figures, so high that they may exceed the figures considered compatible with continued life, shortly returning to the reading preceding the accident. There are all degrees of this apparent reversal of function from the spectacular ones, through the slower changes where there is only a slight reversal, and, finally, those so slow that the changes in blood chemistry keep pace with the tissue changes, and the orthodox situation is seen.

Thus, there is a primary tissue or cellular priority with regard to the constituents of the blood, just as there is with regard to water, wherein the tissue demand is fulfilled at the expense of the blood and kidneys, before there is available material for excretion. Therefore, the concentration of metabolites and electrolytes in the blood is not entirely an index of the ability of kidneys to excrete them but is a level which is maintained in equilibrium, osmotic and chemical, with the tissues. When this equilibrium is satisfied, the kidneys excrete the constituents in excess of the demand, regardless of the level. For example, the body will remain in nitrogen equilibrium, the kidneys doing their share of the work, whether the total nonprotein nitrogen of the blood stands at 25 or at 100 mg.

THE RENAL EXCRETION OF PROTEIN

Andrews and I found that typical and satisfactory nephritis and uremia were produced in dogs by the

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* From Rush Medical College and the Research Laboratories, University of Illinois.

* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Aldrich, C. A., and McClure, W. B.: Time Required for the Disappearance of Intradermally Injected Salt Solution, J. A. M. A. 86: 293 (July 28) 1924.

intravenous injection of a 5 per cent solution of sodium chloride and the urinary proteins were studied.[2] Postmortem examination of dogs in which severe uremia was produced revealed a marked breaking down of liver tissue with a decrease in calcium and a marked increase in sodium in the liver and we felt that some of the protein in the urine was derived from this source. Identification of proteins can be made only by immunologic methods. With the advice of Dr. Hektoen we prepared a potent precipitin, using liver extract—our anti-dog liver precipitin. The protein excreted during the first hours of artificial uremia in dogs reacted strongly to our anti-liver precipitin, but not at all to an equally potent anti-dog serum precipitin, indicating the presence of liver tissue without serum proteins in the urine. Gradually, however, the liver reaction became weaker and the serum reaction stronger, the liver protein being finally masked altogether. Later, with the same method, we identified central nervous system, muscle and spleen protein in these first fractions of urine.

Using the later portions of urine, showing only serum protein, Dr. Welker[3] succeeded in identifying a toxic peptone radical attached to the protein molecules, giving proof of the principal point in our theory of urinary proteins, since the combined peptone, serum protein radical, was a foreign protein.

The normal renal epithelium is no barrier to the passage of protein. Injected foreign proteins are excreted rapidly through normal kidneys. We have assumed, therefore, in this work the following hypothesis as a working basis: Normal or damaged, the kidney is able to retain within its circulation those proteins which are normal to its body and will excrete proteins foreign to it. The excretion of serum proteins (albumin, pseudoglobulin and euglobulin) in nephritis, orthostatic albuminuria and allied conditions indicates that these proteins have become so altered that they no longer conform to the requirements of the particular organism and are therefore treated as foreign. This process, however, is not confined to the renal capillaries but to every capillary in the body. The marked loss of serum protein in nephritis, falling often to 50 per cent of the normal content, is due to the constant loss through the capillaries throughout the body as well as the renal loss, which may be quite small.

In an artificial nephritis, then, by the simple introduction of sodium chloride into the body there occurs a rapid and marked reallocation of minerals, calcium leaving the tissues, reaching the blood and being excreted, while sodium replaces the calcium in the tissues, notably the liver and the central nervous system. As a result, the vital electrolytic equilibrium is destroyed, cell membranes are broken, cellular integrity is lost, and tissue (liver) protein as such is released, first in the intercellular spaces, passing shortly into the circulation (unaltered) and is excreted as a foreign protein and identified as such in the urine. It is a relatively normal nontoxic tissue protein, retaining its immunologic identity but not belonging in the blood. Shortly, as the process proceeds the cells are further damaged, the protein is split so as to lose its identity, and as this splitting is carried to the proteose-peptone stage the split products become highly toxic. At this point, then, they unite in the blood stream, with a normal molecule of serum protein, the two combined form a foreign protein and are excreted, though the combination retains its identity by the precipitin test.

To prove the theory of the specific, selective action of the kidneys with regard to normal and foreign proteins, the liver of a normal dog is rapidly ground in a ball mill under conditions preventing protein alteration, extracted with physiologic solution of sodium chloride, and the extract injected intravenously in a normal dog. The extract contains liver tissue and normal blood. There promptly appears in the urine a protein identified as liver, with no blood appearing. This liver protein is antigenic and may be used to prepare a pure, high titer anti-liver precipitin.

With regard to the peptone and detoxifying function of serum protein, Dr. Welker has succeeded in hydrolyzing the combined peptone-serum protein radical and in obtaining each in pure form. The serum protein, when injected into a normal dog, remains in the circulation. The toxic radical, when reinjected, appears promptly in the urine in combination with a previously normal serum protein molecule. Further work in process of completion by Dr. Welker indicates that other foreign proteins, notably Bence-Jones protein, are eliminated by the kidneys in a firm combination with normal serum albumin.

CONCLUSIONS

1. The clinical picture of nephritis is due largely to generalized and specialized tissue damage, to disturbance in tissue metabolism and to mineral balance rather than to lack of renal function and retention of waste products and water.
2. The kidney, normal or diseased, exerts a selective action on the proteins circulating in the blood, retaining those normal to that body and excreting those foreign to it.
3. Artificial nephritis and uremia may be produced in dogs by the intravenous injection of a 5 per cent solution of sodium chloride.
4. The urinary protein in these artificial uremias is at first pure tissue protein.
5. When the tissue protein has been split to a toxic stage, it is combined with serum protein, which combination constitutes a foreign protein and is excreted as such.
6. The presence of serum protein in the urine in nephritis is a detoxicating mechanism.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MITCHELL AND GUEST, DR. AMBERG, DRS. BLACKFAN AND MCKHANN AND DR. THOMAS

Dr. Fred W. Schlutz, Chicago: I will limit my remarks to a discussion of Dr. Thomas's paper. The important thing in nephritis is the primary renal insufficiency with resulting nonprotein nitrogen retention in the blood and other body fluids. I would be inclined to doubt that kidney damage or massive operative removal of a large part of the kidney would lead to any other picture. Dr. Thomas stated that the damaged kidney is fully able to excrete water. I believe there is, however, considerable experimental evidence to show that this capacity is definitely limited in the damaged kidney, and that it is limited just as practically all other functional capacities of the kidney are limited. I think one really must not get away from the conception that renal function must be considered as a unit and not as a group of isolated partial functions, one or several of which may be impaired and the others not. There is still, I believe, considerable difference of opinion regarding the theory that chronic renal edema is due to the thirst of tissue for fluid. There is some pretty good experimental evidence that seems to be at variance with this theory. Dr. Thomas stated that the behavior of the kidney toward the metabolites and electrolytes of the blood depends completely on the state of the tissues. This is a new conception and is quite at variance with the prevailing and heretofore accepted opinions. I am unconvinced that observations on the chemical changes of the blood in uremia are unimportant. I should still place a large part of my reliance on them. The production of nephritis and uremia in dogs by the injection of 5 per cent solution of sodium chloride is, of course, a procedure far more drastic than anything which could conceivably happen in the average case of nephritis. One must consider whether all sorts of tissue protein would not be disorganized in such a procedure and respond in the urine to precipitin tests. The application by Dr. Thomas of the precipitin method of Dr. Hektoen to his problem is indeed ingenious, and his theory that the kidney has specific selective action with regard to normal and foreign proteins is most interesting. The idea that the organism could so readily rid itself of the foreign poisonous proteins appeals to the imagination. It would really be a simple explanation for what has happened. I hope that further experimental work and good clinical proof will substantiate this highly original theory. It would revolutionize the present ideas regarding nephritis and uremia. Dr. Thomas did not mention whether he had data on the human subject. I think it would be necessary to bring forward considerable proof on the human organism in support of his original and interesting views. One must be a little cautious in experimental work in translating the data found in the experimental animal, especially in the case of such drastic procedures, without reserve to conditions as they are found in the human being.

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[2] Andrews, Edmund: Experimental Uremia, Arch. Int. Med. **40:** 548 (Oct.) 1927.

[3] Welker, W. H.; Andrews, Edmund; and Thomas, W. A.: Identity of the Urinary Proteins in Nephritis, J. A. M. A. **91:** 1514 (Nov. 17) 1928.

DR. C. A. ALDRICH, Winnetka, Ill.: It is a distinct advance in the treatment of the nephritis problem that four men can get up and talk about these different conditions and separate them into clinical entities. A few years ago one would have heard of different manifestations of the same disease. Here one seems to be hearing about three, at least, different diseases. Dr. Amberg's observations on nephrosis tally closely with my own except that it has not been my experience that low salt feeding did any good to these patients. I have tried it many times but have not been convinced that it was responsible for improvement so in the last few years I have not limited the salt intake. I wonder whether Dr. Mitchell has seen any cases of renal rickets apparently associated with obstructive lesions in the lower urinary tract. Two of our four cases seem to have this as a possible etiologic factor. I cannot say too much about the brilliant approach Dr. Thomas makes to the problem. I think that some such sort of revolutionary attitude in attacking this problem is what is needed. It is to be hoped that some truth will filter out of newer ideas such as he presented. As far as I know he has given the first demonstration of a rational cause for albuminuria. Gross experimental procedures, such as clamping off the vessels and giving violent poisons, do not explain clinical albuminuria. There is one type of nephritis which was not spoken of here. That is the disease called chronic glomerular nephritis, chronic diffuse nephritis, or, as I like to call it, nonspecific nephritis. Last fall, after working for eleven years on this type of case and seeing the patients die off year by year without any good results from the usual method of treatment, and after hearing Dr. Barker talk about the serum proteins and their effect on edema, and having become, as I say, thoroughly disillusioned and disappointed with treatment, I tried giving these patients a full diet with high vitamin content. After about three months of this treatment the patients began to look so much better that I began to enjoy going to my nephritis clinic. Some got out of bed and went back to school. The results have been highly satisfactory so far. We have one patient who entered the hospital a year ago with 15 pounds of edema fluid, who lost his water and now weighs 10 pounds more than he weighed with all his edema. He has been on a high protein diet, with meat three times a day, and he has what anybody would call a chronic glomerular nephritis. This diet has not seemed to increase the amount of nonprotein nitrogen in the blood in any instance, and many times this has been reduced while the patient was eating the high protein diet. This, I think, confirms Dr. Mitchell's suggestion that these patients be put on a sufficient diet. In addition to these results, as far as the chemical changes in the blood are concerned, we have had four patients who have turned up with negative urines, whereas I had never before seen a person with chronic nephritis appear in the dispensary with a negative urine. Three of the four still are clinically well. The other has now merely albuminuria.

DR. HERMAN SCHWARZ, New York: Dr. Blackfan's therapy is excellent. In these cases I have tried with success Dr. Volhard's suggestion of total starvation; I mean from twenty-four to forty-eight hours' total abstinence from food and fluids. Since 1921, in collaboration with Dr. Jerome Kohn, I have studied and followed thirty-one cases of nephrosis. We have had cases of only four months' duration proved by postmortem examination, but of course cases of long duration are the rule. We have asked ourselves the following question: 1. Is nephrosis primarily a disease of the kidney? 2. What rôle does infection play? 3. Do the endocrine glands play a rôle? 4. What is the edema due to? 5. What is the hypercholesteremia due to? 6. Do the edema and increased cholesterol go together? Of course I cannot answer all these questions. In brief, I might say that we believe that (1) this disease is not primarily a kidney disease; (2) infection does not play an important part in the etiology; (3) the thyroid except for its usual rôle in water metabolism is not an important factor; (4) just what the edema is due to, no one can say, but we do not believe that it is due only to loss of protein in the urine; (5) the cause of the cholesteremia is not known, and (6) the edema and cholesteremia are not always increased (sometimes one is increased and the other remains the same or vice versa).

DR. JOHN D. LYTTLE, New York: I have asked Dr. Mitchell why it is that some children with chronic nephritis get renal rickets and others do not. I have studied cases of chronic nephritis that began at the age of 6 years and went on for three and four years with an extreme degree of renal insufficiency. That is, the children had anemia, nitrogen retention, a low calcium and high phosphate content of the blood and acidosis. Yet, Dr. Caffey and others have never been able to demonstrate any bone changes that suggest renal rickets. I believe from studying the paper of Drs. Mitchell and Guest last summer and from a study of the literature in general that the children with chronic nephritis who have the bone changes called renal rickets will be found to have the disease either from early infancy, perhaps in the uterus, or at any rate during the period of the first five or six years of life, the period of the most active growth. One is struck on reading the figures given by Drs. Mitchell and Guest with the number of congenital anomalies, double urinary obstruction, congenitally hypoplastic kidneys and cystic kidneys. I think that chronic renal insufficiency during early infancy is what in all likelihood causes the bone changes.

DR. SAMUEL KARELITZ, New York: Two years ago in discussing a paper on "renal rickets" by Schoenthal and Burpee, Dr. Béla Schick referred to such a case which we were observing. This child, followed for about eighteen months, received treatment with 0.3 cc. of viosterol daily for six weeks and, after a rest period of three months, 0.25 cc. daily for six weeks. This represents about twice the maximum dosage administered in severe cases of rickets at present. Roentgenograms of the skeleton revealed some interesting changes which I should like to demonstrate with the aid of some slides. The first slide shows the dwarfism and bony deformities of a white child with renal rickets as contrasted with one of the average height and weight for the age. The second slide shows the bones of the forearm as first seen, with marked osteoporosis and moth-eaten irregular epiphyses. The third slide shows improvement in the bones after six weeks of treatment with 5 minims of viosterol daily. The bone is denser and the epiphyses are cleaner and more sharply defined. The fourth slide shows the same bones six months later. There seems to be a subluxation at the wrist, but I believe that these deformities are in the bones and were probably influenced by the child supporting herself on her hands while in the sitting position. In the soft parts the blood vessels can be outlined with ease owing to calcification. I have other slides showing calcified masses intra-abdominally which I shall show to any one who is interested in seeing them. These observations are presented not to reflect on the use of viosterol but to call attention to the possibility that, when renal disease exists and with that a tendency to arterial change, it should be used with great caution, if at all.

Dr. A. Graeme Mitchell, Cincinnati: To answer Dr. Aldrich's question, exactly the same conditions, such as stunting of growth, infantilism and bone changes, come about in patients who have chronic obstruction of the genito-urinary tract, either acquired or congenital, and it is simply an end-result of that situation, exactly the same as in the patients with the small, shrunken kidneys. I cannot answer Dr. Lyttle's question except to say that I think his explanation is probably correct, namely, that if these obstructive conditions or the renal insufficiency occurs in very early life then the bone changes take place. In an attempt to solve this matter we collected a large group of case reports of patients with and without the bone changes. We attempted in every way to analyze these two groups to see whether we could make out any difference in them. It was not possible to discover any difference with the exception that it seemed as though in the patients with the bone changes the nephritis or obstructive condition probably started earlier in life. In my experience with the treatment of edema in so-called nephrosis, the best treatment and, it seems to me, the only one I understand, is to do nothing for the patient. That is, edema appears and disappears and the condition changes, apparently regardless of what is done.

Dr. W. A. Thomas, Chicago: I realize, and have frequently been made to realize, that it is practically heresy to attempt to divorce the kidneys from nephritis. With regard to Dr. Schlutz's remarks, I did not mean to indicate that I was not considering the renal factor in nephritis. I realize that the kidneys are possibly more damaged than other organs, and they are unable to excrete water and metabolites as readily as normal kidneys do; but simply because they partake in this general damage which occurs in nephritis and because of that reason there is delay in excretion of water. Fundamentally the water metabolism is not due to the kidneys primarily, their inability to excrete it, but due to the claim of the tissues on it. With regard to experimental bilateral nephrectomy, I must disagree with Dr. Schlutz, because frequently dogs live a number of days, six, eight, ten, and will die with lower blood pressures. There is work being carried on at the Presbyterian Hospital, on another method of causing complete renal insufficiency, and that is practically always the situation. I have not meant to minimize the importance of blood chemistry. I meant simply to indicate the importance of the tissue element in determining the level at which the blood chemistry figures remain, rather than total inability of the kidneys to excrete water and metabolites. We produced the same picture and the presence of tissue proteins, notably liver, protein in dogs, giving anesthetics, and for a number of hours following an anesthetic there appears in the urine of dogs a protein which is purely a tissue protein. The same thing happens in the human being. We have carried on a large number of experiments making antiserum precipitants for human organs and have obtained, following anesthetics, exactly the same mechanism. I realize that the method of producing nephritis and uremia by injection of large doses of chloride is entirely artificial and we have called it artificial uremia. The mechanism, nevertheless, I think, is invaluable because of our observations in anesthetia and other methods of producing tissue damage, which resulted in excretion of tissue proteins in the same combination.

Dr. Samuel Amberg, Rochester, Minn.: With regard to the discussion of Dr. Aldrich: we talk about low intake of salt and not a salt-free diet. We do not give extra salt, but I have seen cases in which a liberal allowance of salt did cause an increase of the edema, exactly as described by Widal and Strauss. As to the remarks of Dr. Mitchell: I think I brought out that one must figure with the spontaneous variations in the edema. This is highly important. Sometimes one does not know how they come about, but I cannot follow him when he says that measures for the production of diuresis are of no avail or should be dispensed with. In one of our cases, on a number of occasions edema disappeared with administration of urea and reappeared on cessation of its administration.

BLEEDING OF BENIGN ORIGIN*

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Hemorrhage from an external bodily orifice is a dramatic symptom frequently of ominous portent. Acute bleeding arouses at least three grave suspicions—a blood dyscrasia, the ulceration of a malignant neoplasm or a chronic inflammatory process, particularly tuberculosis.

This report deals with a group of patients whose presenting symptom was hemorrhage but in whom serious organic disease was excluded. The diagnosis of bleeding from benign cause, furtively advanced at first, was borne out by thorough investigation and later observation in the follow-up clinic.

HEMOPTYSIS OF BENIGN ORIGIN

Hemoptysis immediately suggests tuberculosis or the ulceration of a malignant intrapulmonary neoplasm. Nevertheless, direct visualization by bronchoscopy may at times reveal that the bleeding arises from a benign source, such as a hemangioma:

REPORT OF ILLUSTRATIVE CASES

Case 1 (courtesy of Dr. A. M. Fishberg).—D. R., a woman, aged 39, coughed up half a glass of blood two years ago. She was sent to the country with a diagnosis of pulmonary tuberculosis, and there she improved greatly. Since her return she has again expectorated blood on more than six occasions. She consulted Dr. Fishberg, who referred her for bronchoscopy. The laryngologist observed a plexus of dilated veins at the base of the tongue, from which the bleeding had undoubtedly occurred. On questioning, the patient then gave the history that the blood filled her mouth before she began to cough.

Case 2 (courtesy of Dr. Rudolph Kramer).—N. N., a man, aged 32, had coughed up blood streaked sputum for two and a half years. Laryngoscopy revealed a reddish tumor in the middle of the left vocal cord. The growth was removed and the microscopic diagnosis was cavernous angioma. There has been no recurrence for two and a half years.

Again, hemoptysis of benign origin may arise as the result of the ulceration of the granulation tissue around a foreign body:

Case 3.—H. M., a youth, aged 19, was first admitted, in 1925, with a complaint of blood spitting. He brought up about two ounces every ten days. In addition, he had pain in the chest, night sweats and chilliness. Physical examination revealed anemia, clubbing of the fingers and a suspicious infiltration in the right upper lobe. The diagnosis was pulmonary tuberculosis, and the boy was discharged from the hospital. He rested at home for three months and, although he felt well, he nevertheless had four or five more hemoptyses. Bronchoscopy at this time showed the right lower lobe bronchus to be filled with a mass of granulation tissue, which bled easily. A broncholith was removed and its kernel was a piece of the shell of a nut. Since then he has had repeated hemoptyses from these granulations, which persist despite frequent cauterization by bronchoscopy.

In one instance the diagnosis of lupus of the trachea was made by the bronchoscopist and it was from this area that the bleeding occurred:

Case 4.—B. H., a woman, aged 46, complained of hemoptyses of three years' duration. All examinations were normal and bronchoscopy revealed a lesion of the trachea resembling lupus. She received radiotherapy and was free from bleeding for ten months, after which she had another hemoptysis. On her readmission to the hospital a bronchoscopic examination was again made and the lesion was cauterized. The bleeding has not recurred.

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* From the Medical Service of Mount Sinai Hospital.

* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

Benign tumors of the bronchus may also give rise to extensive bleeding:

Case 5.—A. J., a woman, aged 49, had had repeated hemoptyses for nineteen years. A biopsy done in 1918 from a bronchoscopic specimen revealed the presence of carcinoma. The patient was admitted to Mount Sinai Hospital, April 3, 1931, after having had four small hemoptyses in five weeks. Bronchoscopy revealed a granular mass obstructing the right main bronchus just below the level of the bifurcation. Pathologic examination of the excised specimen revealed adenoma.

Case 6.—A. G., a housewife, aged 36, was admitted to the hospital three times with complaints of hemoptyses. Roentgen examination showed a persistent inflammatory process of the right middle lobe and, on bronchoscopy, this was found to be due to a rounded mass in the right middle lobe bronchus. Section showed an adenomatous tumor, which was almost entirely removed after several bronchoscopies. Nevertheless, the patient has continued to bleed, and the lung tissue beyond shows a chronic inflammatory change, the result of the prolonged stasis.

BENIGN HEMATEMESIS

Vomiting of blood suggests ulceration, either benign or malignant, in the stomach. Bleeding from esophageal varices frequently occurs also, particularly in persons addicted to alcohol, with cirrhosis of the liver. The bleeding, however, may occur from less ominous causes, such as telangiectases unrelated to obstruction of the portal circulation:

Case 7 (courtesy of Dr. Asher Winkelstein).—M. K., a man, aged 53, gave a typical history of duodenal ulcer from 1925 to 1927. On frequent occasions he vomited large quantities of blood. He developed secondary anemia with a hemoglobin content of 45 per cent. Partial gastrectomy for ulcer was performed. On one occasion he bled anew, and investigation at this time revealed that he had multiple telangiectasis involving the nose, tongue and lips. A further questioning into his history revealed the fact that he had frequent nosebleeds and that the condition was a familial one.

MELENA OF BENIGN ORIGIN

Blood in the stools as the result of hemorrhoids occurs frequently. When this is not the cause of the bleeding, however, a malignant process is a justified suspicion. Occasionally melena may result from one of the hemorrhagic diseases:

Case 8.—M. B., a woman, aged 30, was admitted to the hospital with abdominal cramps and bloody stools. Three weeks previously she had had a sore throat, and shortly after her admission she developed an eruption over the hands and back that was typical of erythema nodosum. Her other examinations showed normal conditions, and the bleeding ceased when the eruption disappeared.

Again, the bleeding may occur from a local blood-vascular tumor:

Case 9.—J. S., a woman, aged 45, was admitted to the hospital with a complaint of bloody stools. The hemoglobin fell to 12 per cent. She received four transfusions of blood, and investigation failed to disclose any abnormality until proctoscopy revealed a small nevus within the anal ring. This was cauterized, and she has been symptom-free for the past two years.

At times it may be impossible to make a diagnosis of the cause of the bleeding, and yet the course of the disease may illustrate the benign character of the lesion:

Case 10.—R. N., a woman, aged 50, entered the hospital with cholelithiasis, hypertension and bloody stools. None of the examinations threw any light on the etiology of the melena. The blood pressure fell to normal and the hemoglobin rose while she was in the hospital. She was discharged and has never had any further bleeding.

Case 11.—M. L., a girl, aged 20, was admitted with a complaint of blood in the stools but no other symptoms. She bled for three weeks while she was in the hospital. All examinations showed normal conditions, except that she had a hemorrhagic retinitis. This cleared up, as did the gastro-intestinal symptoms. She was discharged and has had no bleeding since.

Case 12.—R. D., a woman, aged 29, also had profuse bleeding from the rectum. The hemoglobin was 55 per cent. All other examinations were normal. The bleeding ceased; the hemoglobin rose, and she was discharged and has been symptom-free ever since.

Benign bleeding from urethra and vagina are of such frequent occurrence as to require no further comment.

COMMENT

Patients who present the ominous symptom of hemorrhage may ocasionally suffer from a benign lesion, and the disease may run a propitious course. The diagnosis of benign bleeding, however, must never be hazarded until all available examinations have excluded the presence of a blood dyscrasia, malignant neoplasm or chronic inflammatory process, such as tuberculosis. It is unwise, furthermore, to advance this diagnosis unless the benign lesion can be visualized by some direct method of examination, such as bronchoscopy or proctoscopy. Indeed, even in cases in which a malignant process has been excluded and a benign process demonstrated, the cautious diagnostician will proceed with the knowledge that the patient with a benign cause for bleeding may harbor a malignant disease as well. Although I am conscious of all these evil forebodings, I have presented this group of patients to illustrate the fact that extensive bleeding may result from a benign lesion and either completely cease or be prevented by local forms of treatment.

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ABSTRACT OF DISCUSSION

Dr. Frank Smithies, Chicago: I was impressed by the number of women patients. One should never forget the possibility of hemorrhage from a lesion in a woman in relationship to the menstrual cycle or at the menopause. Bowen and I, in 1917, reported a considerable series of instances in which, on account of hemorrhage, extensive operations were performed on abdominal organs, when, if the history had been interpreted in the light of the menstrual function of the female in relation to the hemorrhage, some of the disastrous consequences of operation would have been avoided. We showed that a lesion of ulcerative type or any lesion of the mucous surface where the surface was broken, in an individual with a constitutional predisposition or tendency to seep blood, actually often bled extensively shortly before or during the menstrual period or at the menopause or at irregular menstrual cycles. Therefore, it seems we should always get the relationship of bleeding in women to the menstrual cycle or to the menopause. One group of patients to which I would call particular attention comprises those whose occupation keeps them in close relationship with some of the volatile hydrocarbons. I have had a number of people working in research laboratories—for example, oil refineries—or men who handle gasoline or benzine, who came in with obscure hemorrhage, particularly hemorrhage from the lungs, but in three cases there was hematuria. In one case there was intermittent vomiting of blood-stained material. The hemoglobin was low; the individual exhibited most striking evidences of severe anemia, and smears revealed definite damage to the bone marrow. It was found, however, that practically all of the hemorrhagic specimens exhibited laked or partially laked blood. In one young girl in whom pulmonary tuberculosis was suspected and who had been confined to an institution for a considerable time, this laked blood appeared in large volumes. The girl was employed in a laboratory devoted to research on volatile oil derivatives. In this type of case it is easy to suspect tuberculosis or some severe blood dyscrasia, unless careful physical and roentgen studies are made. The permeability of the alveolar walls, in the lung, leads to a saturation of the blood with the volatile hydrocarbon to a degree adequate to produce laking in the vessel, and this is followed by seepage from the capillary bed.

Dr. Hyman I. Goldstein, Camden, N. J.: Dr. Kessel did not mention hematuria or rectal and uterine bleeding. These "benign" hemorrhages may also occur in heredofamilial angiomatosis. Some members of an affected family may be "skipped," explained by atavism, or some patients may bleed with or without evident telangiectases. In 1930 I reviewed the literature and reported a series of three groups of patients of my own with this disease. There are now probably on record ninety or ninety-five families, including about 500 individuals, thus affected. Many cases are not diagnosed and not reported. I might state that the presence of angiomas, telangiectases, red, pin-point lesions on the lips, buccal mucous membrane, nose, and other parts of the body does not necessarily exclude a malignant condition in a case of gastric bleeding (or true gastric ulcer). I have already referred to Osler's case of a man, who had familial telangiectases with epistaxis and who, at necropsy, was found to have gastric telangiectases, with an extensive carcinoma. In these types of hemorrhages there may be a distinct "atavistic" tendency, so that a patient who comes to the office with severe gastric bleeding, perhaps, as a result of gastric telangiectases, but without a definite history of familial nosebleed in his immediate family, with or without evidence of telangiectases in other members of his family, during his generation, may be an instance of this familial clinical entity. In one family I reported there were eleven persons affected. In March, 1931, I saw a woman, aged 42, who was suffering severely from this disease. I also saw her mother, who was similarly affected. Her daughter, brothers, sisters, uncles and grandparents were also affected—a total of eighteen or nineteen members in this family who had various degrees of nasal hemorrhages. Let us not go away with the definite assurance that fatalities may not occur. A number of deaths have been reported from severe uncontrollable hemorrhages and, after a number of years, from severe secondary anemia. The patient I reported in 1921 just died (July, 1931) as a result of severe and persistent recurring epistaxis and marked secondary anemia, in Atlantic City. The differential diagnosis must be made from the various purpuras, hemacelinosis, hemogenia (Emile-Weil), afibrinogenia (Opitz and Frei), hereditary thrombasthenia (Glanzmann), aleukia hemorrhagica (Frank), familial thrombocytopenia, hemophilia, pseudohemophilia, leukemia, tuberculosis, deficiency disease, splenic anemia, and other anemias. Specialists who see these patients may overlook the renal nature of the "benign bleeding."

Dr. George H. Gregory, Versailles, Ky.: I should like to ask the author only whether or not in these cases of benign bleeding, after some length of time, one may get symptoms of a primary anemia; I mean in patients who have lost considerable blood over a long period of years and who may show symptoms of vomiting and other symptoms of the primary anemia. I wondered whether or not ordinarily with his series he found cases of benign bleeding that resemble in a good many respects pernicious anemia.

Dr. Leo Kessel, New York: I will answer the last question first. I have never seen a picture of pernicious anemia that developed under these circumstances. None of the patients showed the evidences of primary anemia. The discussion has brought out a further interesting group in connection with the bleeding which fails to disclose its origin in either a malignant form of neoplasm or tuberculosis. In the case that the second speaker asked about there was no familial bleeding and no telangiectasis. The emphasis that the second speaker also laid on the type of case in which there is familial telangiectasis, and at the same time carcinoma, as Dr. Osler described a number of years ago, was well placed. I saw an example of exactly the same type, about ten years ago: a man whose bleeding was regarded to be the result of telangiectasis, his only other symptom being nausea. He subsequently died, and at the autopsy carcinoma of the pylorus was found. I would emphasize in connection with the group of cases that I described the fact that so many of the patients appear in the hospital as very ill people. In one girl the hemoglobin was 12 per cent, and in other instances the hemoglobin was as low as 40 or 45 per cent; that, I think, is apt to be misleading unless one keeps in mind the fact that the bleeding may be of benign origin or from a benign lesion. These people really look ill. This girl, for instance, was blanched, and it appeared as though she had been bleeding from a condition which was of an extremely serious nature, but it was found to be a simple condition. None of my cases of ulcerative colitis, of which I have had a large number, have been baffling in that particular respect because they have all come into the hospital with the evidence of true ulcerative colitis. It wasn't difficult to recognize that the blood in their stools was a manifestation of underlying disease—ulcerative colitis.

INCIDENCE AND VARIETY OF HEART DISEASE IN SCHOOL CHILDREN OF SAN FRANCISCO

TWO YEARS' SURVEY [*]

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The increasing death rate from heart disease, whether real or apparent, has led to much mass investigation[1] and to the appearance of numerous articles on the subject. The more critically one scans such articles, the more convinced one becomes that, with the exception of syphilitic heart disease, very little is known about the etiology, prevention or prognosis in cardiac disease.

A determination of the incidence of heart disease must be one of the important methods of approaching a solution of the problem. The earlier articles have given the incidence in hospital and clinical admissions,[2] and more recently there have been surveys of groups of employees[3] and of school children.[4] In general, about 1.5 to 2 per cent of the population seem to be suffering from heart disease. By the time the patient seeks the physician or the clinic, the condition is already well established, so that treatment must be directed along palliative rather than curative or preventive lines, and the problem of causation can be studied only through a review of the histories of the patients. As it has already been pretty well established that the beginning of most heart disease is in early childhood,[5] data obtained from the histories of older individuals must of necessity be limited. The incidence of some forms of heart disease seems to vary with location.[6]

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[*] From the Department of Medicine, University of California Medical School.

[*] Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Cohn, A. E.: Heart Disease from the Point of View of Public Health, Am. Heart J. **2:** 275 (Feb.), 386 (April) 1927. Wyckoff, John: Etiology in Organic Heart Diseases, ibid. **1:** 446 (April) 1926. Dublin, L. I.: Statistical Aspects of the Problem of Organic Heart Disease, ibid. **1:** 359 (Feb.) 1926. Emerson, Haven: Economic Aspects of Heart Disease, ibid. **4:** 251 (Feb.) 1929.

[2] Stone, C. T., and Vanzant, F. R.: Heart Disease as Seen in a Southern Clinic, J. A. M. A. **89:** 1473 (Oct. 29) 1927. Benjamin, J. E.: The Heart Disease Situation in Cincinnati, Am. Heart J. **2:** 637 (Aug.) 1927. Viko, L. E.: Heart Disease in the Rocky Mountain Region, ibid. **6:** 264 (Dec.) 1930. Coffen, T. H.: The Incidence of Heart Diseases in the Pacific Northwest, ibid. **5:** 99 (Oct.) 1929.

[3] Matz, P. B.: Statistical Studies Bearing on Problems in the Classification of Heart Disease: V. Heart Disease Among Ex-Service Men, Am. Heart J. **4:** 313 (Feb.), **4:** 455 (April) 1929.

[4] Cahán, J. M.: The Incidence of Heart Disease in School Children, J. A. M. A. **92:** 1576 (May 11) 1929. Benjamin (footnote 2). Leipoldt, C. L.: Organic Heart Disease in Transvaal School Children, M. J. S. Africa **15:** 180 (March) 1920

[5] Clark, Taliaferro: Heart Disease as a Public Health Problem, Pub. Health Rep. **44:** 2463 (Oct. 11) 1929.

[6] Siegal, David; and Siegal, Beatrice C.: Studies in the Epidemiology of Rheumatic Fever, J. A. M. A. **89:** 11 (July 2) 1927. Clark, J. T.: Epidemiology and Statistics, Geographical Distribution, J. Trop. Med. **33:** 249 (Sept. 1) 1930. Young, M.: The Geographical Distribution of Heart Disease in England and Wales and Its Relation to That of Acute Rheumatism, Lancet **2:** 590 (Sept. 19) 1925.

San Francisco is a city with a mild climate and, for the most part, good living conditions. Over 91,000 children are enrolled in its city schools. In March, 1929, the Children's Health Center of the American Association of University Women, in cooperation with the city health department, began a survey of the incidence of heart disease among the children, and the present paper is of the nature of a preliminary report on this work. The center is financed by the community chest and the city health department. The clinicians are members of the two university medical schools, and the nursing staff is furnished by the health center and the city health department. In addition, there are a paid technician and a cardiac field worker, furnished by the San Francisco Tuberculosis Association. The center is an integral part of the San Francisco Heart Committee through the committee on schools. Its function is purely diagnostic and educational. In addition to the equipment necessary in making a routine physical examination, the center is furnished with roentgenographic and fluoroscopic units and a cardiograph.

According to the present system, the school child is examined at the school which he attends by a physician employed by the city health department, and the presence of a murmur or any other sign or symptom referable to the heart is noted. The health department nurse then makes the contact with the parents, and if the child is not already under the care of a physician or outpatient department clinic, the parent is advised to bring the child to the cardiac center for diagnosis. On the first visit to the center, the history is taken and physical examination made and recorded on the forms of the American Heart Association. If the condition is frankly organic, roentgenograms and cardiograms are ordered, and the child is asked to return with his parent for diagnosis and conference. The child is then referred to a physician or to an outpatient department for treatment and observation, and is asked to return once a year to the center for a checkup. A letter with complete diagnosis is sent to the physician or the outpatient department of the parents' choice. Patients with functional and doubtful conditions often make more than two visits to the center before a diagnosis is established. The center cooperates closely with the physical education department of the schools by sending, at the close of each session, a list of the children examined, with the functional capacity rating of each. The physical education teachers and nurses at the schools have copies and explanations of this rating as furnished by the American Heart Association. A child's functional capacity is adjudged after careful consideration of his symptoms, the results of physical examination and his performance of the exercise tolerance test.

About 2 per cent of the total school population have been reported by the school physicians as cardiac suspects. Approximately half of these suspects report to the cardiac center, the other half being already registered in some outpatient department or being under the care of a private physician. During the past two years (March, 1929, to March, 1931) 843 children have been examined, and 319 of these were found to have organic lesions. These figures do not, of course, in any way represent the true incidence of heart disease among school children, as the entire group has not as yet been examined. Moreover, the more serious cardiac cases, those in which there has been disability, are more likely to be already under observation; i. e., there is probably a higher incidence of heart disease among suspects not reporting to the center than among those who do. A large proportion of the children reporting to the center have never had the services of a physician or a clinic.

All cases have been roughly dvided into organic or cardiac, and functional or noncardiac. The organic cases fall into the three groups: congenital, rheumatic syndrome, and infections other than rheumatic. It was rather surprising to find that 140 of the 319 organic cases showed congenital lesions. Not only did all cases in this group show definite and characteristic clinical signs, but the majority presented positive roentgenograms. The observations in this group of cases rather parallel those of Dr. Edith Irvine-Jones[7] in her survey of 100 cases in San Francisco in 1926. In the past, one has rather had the feeling that the congenital cardiac patient either dies in early infancy and becomes a pathologic curiosity or has a mild and asymptomic case; but that is not the impression one gathers from the series of cases that Irvine-Jones followed over a period of ten years. Twenty-nine of her patients had already succumbed at the time of reporting and, although half of these were infants under 6 months of age, there were enough in the older age group to make the conditions a matter of concern, especially as most of the deaths were due not to congestive failure but to coincident infection, especially infection of the respiratory tract. But, in addition to this factor of the lowering of resistance, it is clear that these children have considerable disability. Dr. Irvine-Jones found that 71 per cent of her patients showed disability of some kind, and my associates and I have found that 77 per cent of our patients did. The complaints noted, given in the order of frequency, were dyspnea, cyanosis, fatigue, pallor, epistaxis, precordial pain, syncope, failure to gain, palpitation, convulsions, vertigo and tremor. There were seventy-three boys and sixty-seven girls, ranging in age from 5 to 18 years. We have not attempted to classify the lesions anatomically or to go deeply into the family history, deeming such intensive study to be the function of the clinic or the physician to whom the child is referred.

One hundred and fifty-one of the 319 patients belonged to the rheumatic syndrome group. There were eighty-one boys and seventy girls from 5 to 18 years of age. This group includes twenty-five patients presenting rheumatic fever and chorea, in whom as yet no valvular lesion was detected, although they had positive histories and many of them showed changes in the cardiogram and the roentgenogram. Of the remaining 126, 116 showed mitral valvular disease, 7 aortic valvular disease, and 3 combined aortic and mitral valvular disease. A study of the etiology in these cases was most interesting. Sixty-three of the patients gave a history of one or more attacks of rheumatic fever or chorea or both. As has already been stated, twenty-five of these sixty-three children as yet did not show any detectable valvular lesion and the remainder had lesions typical of rheumatic endocarditis. The remaining eighty-eight also had lesions typical of rheumatic endocarditis, although in fifty-eight instances there was an antecedent history only of growing pains, arthritic pains, tonsillitis or an unexplained fever, variously called influenza, carditis and pneumonia; and in thirty instances there was no discoverable etiology. Such cases of unknown etiology, but presenting endocarditis characteristic of rheumatic fever, have been noted in a number of recent surveys and classified under the rheumatic syndrome group rather than under heart disease of unknown etiology, and more recently Major Munly[8] has shown that this unknown group with characteristic rheumatic valvulitis have life histories in all respects similar to those giving a frank history and valvular lesions characteristic of rheumatic fever and chorea.

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[7] Irvine-Jones, Edith I. M.: A Clinical Study of Congenital Heart Disease in Childhood, Am. Heart J. 2: 121 (Dec.) 1926.

Since the appearance of Albert's[9] articles calling attention to the possible rôle that infections[10] other than rheumatic fever may play in the causation of heart disease, especially in later life, we have been keeping a careful record of those children giving a history of scarlet fever or diphtheria or both. We found that 138 of the total number examined gave such a history. In eighty of these no organic lesion could be found; eighteen had already been classified in the rheumatic group and twelve in the congenital group. The remaining twenty-eight showed definite cardiac lesions and all but six had definite complaints, often multiple, of fatigue, pain, pallor and dyspnea. The roentgenograms and cardiograms invariably showed abnormalities.

The functional capacity ratings in the three groups of cases are rather interesting. Among the congenital cases there were 72 per cent in class 1, among the rheumatic group 50 per cent and in the scarlet fever-diphtheria group 32 per cent. In classes 11 *a* and 11 *b* there were 26 per cent congenital, 45 per cent rheumatic, and 70 per cent scarlet fever-diphtheria. This is about what one would expect, the least functional disability in the group with the least myocardial involvement and the greatest functional disability in the scarlet fever-diphtheria group, in which the history and lesion suggest myocardial rather than endocardial damage.

The functional or noncardiac group,[11] comprising some 524 cases, is not without interest to us. As has already been stated, eighty of these patients give histories of scarlet fever and diphtheria and may later develop definite cardiac lesions. In other words, they are probably potential cardiac patients in much the same sense as are the twenty-five patients giving positive histories of chorea and rheumatic fever but as yet giving no evidence of valvulitis. But, as the group is not yet sufficiently defined, we have spoken of them as noncardiac rather than as potential. A large number of the functional cases are, of course, frankly noncardiac, giving no murmur at the time of examination, or showing murmur secondary to undernutrition, anemia and so forth. Some of the patients had murmurs so closely resembling congenital basal murmurs that roentgenograms were made and the cases excluded from the congenital class because of various postural and vertebral column abnormalities. The physical education department is cooperating with us in this group by giving them special exercises for the correction of defects, and they will be followed at the center with great interest.

The whole study to date forms too small a series to permit the deduction of definite or far-reaching conclusions, but it does, I think, suggest a number of possibilities for further study. First of all, such a center, which is neither a hospital nor an outpatient department, does attract cases which would otherwise be overlooked until much later in life. Secondly, it gives one an opportunity to follow many cases from early beginnings through a period of ten or twelve years of school life. In the clinical study the following points may be stressed:

1. Congenital lesions are not uncommon, and they give rise to symptoms and physical disability, though to a far less degree than do rheumatic endocardial and myocardial lesions.
2. The valvulitis characteristic of the rheumatic syndrome is not uncommon in a mild climate like that of San Francisco, but its manifestations are much less dramatic and its inception is far more insidious.
3. Scarlet fever and diphtheria are apparently factors in the causation of organic cardiac disease, and the type of lesion found in these cases suggests the myocardial lesions of later life.
4. The center furnishes an opportunity for the study of the causation of functional murmurs.

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ABSTRACT OF DISCUSSION

Dr. Francis Scott Smyth, San Francisco: I am interested, usually, in the individual case. However, there are certain things that impressed me in Dr. Richter's work. San Francisco had a recent survey by Dr. Hiscock, who pointed out that whereas we had adequate, or fair, means for studying tuberculosis and a fair knowledge of our situation with regard to its incidence, the same could not be said with regard to heart disease. When I first came to San Francisco, it was currently said that rheumatic heart disease was an extremely rare condition, that I would not find it at all frequent. Following a short period of service in one of the hospitals, I came to the opposite conclusion. I think it is only by such a diagnostic clinic as Dr. Richter manages that we shall get the happy medium between the two extreme points of view. The survey from Cleveland by Dr. Ritter, which is a little more complete, gives figures that are quite comparable to those that Dr. Richter has found. I think that in time Dr. Richter's studies will be of increasing importance, comparing them with the Eastern centers.

Dr. Jacob M. Cahan, Philadelphia: This is an important subject, especially since heart disease, as Dr. Richter said, often begins in childhood. In Philadelphia there are over a quarter of a million children in the public schools, and I took the liberty in 1927 and 1928 to examine more than 10,000 of them for heart disease. The most striking difference between Dr. Richter's observations and mine appears to be that I did not get quite as many congenital heart cases as Dr. Richter has discovered. I would be interested to know just what were the bases on which the diagnosis of congenital heart disease was made. It is certainly important to continue such investigations. Dr. Richter ought to be congratulated because her work in such a large city, with over 90,000 children, will perhaps stimulate physicians in other cities to make similar surveys. The sooner we get at the bottom of the cause of heart disease, and the sooner we improve the inadequate convalescence in cases of rheumatic disease and other diseases that damage the heart, the sooner shall we be able to remove heart disease from its present place, at the head of the list of causes of death.

Dr. Ina M. Richter, San Francisco: I have nothing further to add except to tell Dr. Cahan that great care was taken with the diagnosis, naturally, because the large number of them was so surprising. In no case that we have positively diagnosed as congenital has the patient gone away until after being examined by three people at least and until they had gone over all the earmarks of congenital heart disease.

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[8] Munly: Personal communication to the author.

[9] Albert, Henry: Increasing Mortality from Heart Disease, J. A. M. A. **89**: 1312 (Oct. 15) 1927; The Increase in Heart Disease, ibid. **88**: 2021 (June 25) 1927.

[10] Swift, H. F.: The Heart in Infection, Am. Heart J. **3**: 629 (Aug.) 1928.

[11] Washburn, A. H.: Functional Disorders Versus Organic Heart Disease in Childhood, California & West. Med. **34**: 179 (March) 1931. White, P. D.: Observations on Functional Disorders of the Heart, Am. Heart J. **1**: 527 (June) 1926. de Bruin, J.: Some Deviations of Heart and Blood Vessels in School Children, Nederl. Tijdschr. v. Geneesk. **1**: 2192, 1925; abstr. Am. J. Dis. Child. **31**: 575 (April) 1926. Hamilton, R. L.: The Child's Heart in Health and Disease, Arch. Pediat. **47**: 405 (July) 1930

THE TREATMENT OF OBESITY WITH LOW CALORIC DIETS [*]

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The excess weight in obesity has been shown to be fat deposited as an inert storage tissue.[1] The removal of this excess weight can be accomplished only by the burning of these fat stores in direct proportion to the difference between the energy intake and the energy output. However, the energy output of obese persons has been shown to be relatively much higher than is normal for them if of normal weight. Although it is true that the basal metabolic rates in obesity fall within normal limits, much higher figures are obtained if the calories per hour oxygen exchange, from which the basal metabolic rates are computed, are related to the active body tissue represented by the ideal weight. For example, a woman, aged 41, whose ideal weight was 133 pounds (60 Kg.), actually weighed 216 pounds (98 Kg.). Her basal energy output was 74 calories per hour, which gave a basal metabolic rate of minus 4 when related to her actual weight but a rate of plus 23 when calculated on her ideal weight. In other words, this patient as far as her real self, her active useful tissues, was concerned was operating at a level 27 per cent higher than was normal for her. Another woman, aged 50, whose ideal weight was 131 pounds (59 Kg.), actually weighed 206 pounds (93 Kg.). Her calory per hour oxygen exchange was 69, giving a basal metabolic rate when calculated in the ordinary way of plus 4, a normal figure. When related to her ideal weight, these calories per hour gave a basal metabolic rate of plus 25. Such a level of metabolism under ordinary circumstances would be associated with thyrotoxic symptoms. These figures provide one index of the increased work which is done by the obese in merely living. Since, therefore, the daily energy output of these patients is dangerously high, it is obvious that the caloric deficit necessary for weight reduction should not be attempted by further increase of this factor. On the contrary, the attention should be focused on an adequate depression of energy intake by limitation of the diet.

REQUIREMENTS OF A LOW CALORIC DIET

Quick reduction by dietary measures depends on a calory intake which is as low as is compatible with good health. In limiting the diet, certain facts must be kept in mind lest the patient be damaged as in starvation. The first consideration is an adequate intake of protein. The patients must be kept in nitrogen equilibrium. The daily nitrogen output is determined principally by the amount of active tissue of the body, which is represented approximately by the ideal weight of the patient and without regard to the fat deposits. It has been shown that the nitrogen output is approximately 0.16 Gm. per kilogram of ideal weight. This output may therefore be covered by the ingestion of an equivalent amount of food protein or 1 Gm. per kilogram of ideal weight.

An important fraction of the normal caloric intake is supplied by carbohydrate foods. For a minimum caloric diet this factor should be as low as possible. If, however, the diet consists only of protein and its inseparable fat, it is impossible to keep patients in nitrogen equilibrium on a protein intake of 1 Gm. per kilogram, because, in addition to the intrinsic nitrogen metabolism, an appreciable amount of protein is diverted for its antiketogenic properties. For this reason some carbohydrate must be given, not to avoid acidosis but to function as a protein-sparing food and prevent nitrogen loss. After long periods of observation, the amount of carbohydrate which has been determined as adequate at this nitrogen level is 0.6 Gm. of carbohydrate for every gram of protein.[2]

No fat was given in the diet other than that inseparable from the protein ration. Menus containing as little as 9 Gm. a day were employed. The maximum possible influence on the caloric balance was thus secured.

An adequate daily supply of inorganic salts is of great importance. The necessary anions and cations are provided in Tyrode's solution that is made without dextrose.

Since it is necessary to continue these diets for long periods, thought must be given to the vitamin content. The assumption that human fat, as other animal fat, stored the fat soluble vitamins was considered reasonable at first. It has been found desirable to employ supplementary daily doses of viosterol and occasionally whole milk. The remaining vitamins were adequately supplied by the carbohydrate ration in which the 5 per cent vegetables were largely used together with small quantities of growing yeast, orange juice and milk.

With the limiting factors previously described in mind, menus were planned which included 1 Gm. of protein and 0.6 Gm. of carbohydrate per kilogram of ideal weight. Theoretically, such menus represent the minimal possible food intake. Practically, the diets supplied a total of only 400 to 600 calories a day. Nevertheless, the patients were kept in nitrogen equilibrium, had no acidosis, and did not suffer a lack of inorganic salts or vitamins.

As stated, fat is burned and weight is lost in proportion to the difference between the energy expended and the energy taken in. The minimal intake has been described as from 400 to 600 calories. The total expenditure of energy is, however, not easily demonstrable at the present moment. Obviously, the basal calories are used. In practice, a rough approximation, basal calories plus 20 per cent, has been used as a very conservative estimate of the total caloric output. The basal calories of the majority of our moderately obese patients were over 1,600 calories. Excessively obese persons had basal levels of from 2,200 to 2,400 calories. It is very conservative, therefore, to estimate total outputs of from 1,900 to 2,900 calories a day. The caloric deficits which may be secured therefore range from 1,500 to 2,500 calories a day. The weights of fatty tissue which correspond to such deficits are from 185 to 300 Gm. a day. In other words, after a week of rigid dieting the expected weight change can only be from 2½ to 4½ pounds of true tissue loss apart from water shifts. The large weight changes so often observed at the outset of a dietary program are chiefly water shifts for which compensation is inevitable weeks or months later.

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[*] From the Department of Medicine, Western Pennsylvania Hospital.

[*] Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Strang, J. M., and Evans, F. A.: The Energy Exchange in Obesity, J. Clin. Investigation **6**: 277 (Oct.) 1928. Strang, J. M.; McClugage, H. B., and Evans, F. A.: The Nitrogen Balance During Dietary Correction of Obesity, Am. J. M. Sc. **181**: 336 (March) 1931. McClugage, H. B.; Booth, George; and Evans, F. A.: Creatinine Excretion in Abnormal States of Nutrition, ibid. **349** (March) 1931.

[2] Strang, J. M.; McClugage, H. B., and Evans, F. A.: Further Studies in the Dietary Correction of Obesity, Am. J. M. Sc. **179**: 687 (May) 1930.

The menu that has been described indicates the amounts of protein, carbohydrate and fat which were actually ingested. It is obvious, however, that the substances that were actually metabolized were quite different. At the outset the body reserves of stored protein and carbohydrate were used as well as the fat. After the first few weeks, however, nitrogen equilibrium was established and the carbohydrate stores were exhausted. The caloric deficit was then supplied entirely by fat in quantities of from 150 to 300 Gm. a day.

The metabolism of a mixture so high in fat raised the specter of acidosis. At the lowest estimates of fat tissue loss, the theoretical ketogenic-antiketogenic ratios were over 2 to 1 and in the majority the theoretical ratios were 3 to 1 or over. In spite of such formidable ratios the patients showed only transient ketonuria, but in none was it persistent and never was there evidence of acidosis. The absence of acidosis was demonstrated even in the early series of patients who were fed for long periods on little else than their protein requirements. One such patient may be described to illustrate this point:

During the second four weeks of dieting, Miss A. reduced from 158.4 to 148.4 Kg., 10 Kg. or 0.360 Kg. a day.[3] There was an average daily loss of 0.4 Gm. of nitrogen, which was equivalent to 12 Gm. of protein tissue. The remaining 348 Gm. of daily weight loss may be regarded as fatty tissue. The protein tissue and fatty tissue losses were equivalent to 2.5 Gm. of protein and 303 Gm. of fat, respectively. The diet given during this period consisted of carbohydrate 8 Gm., protein 50.5 Gm., and fat 7 Gm. The materials oxidized, however, were carbohydrate 8 Gm., protein 53 Gm., and fat 310 Gm., with a ketogenic-antiketogenic ratio of 4.3 to 1,[4] yet she showed no ketonuria and several plasma carbon dioxide determinations were within normal limits. These observations show that acidosis is a factor that need not be considered.

CLINICAL APPLICATIONS OF THE DIET

Low caloric diets have been used in the routine treatment of 187 obese patients. These 187 patients lost 5,659 pounds, an average of 30 pounds (13.6 Kg.). The average duration of the dieting period was 8.7 weeks. The average weekly weight loss was 3.5 pounds. Practically all patients lost weight more rapidly during the first four weeks than later. The 133 patients for whom weight changes are available for this period lost an average of 16 pounds in this first month. Since the rate of weight loss is fundamentally determined by the difference between the intake and the output of energy, the course in any given case was influenced primarily by the fluctuations in energy output. The tendency for the basal metabolism to reduce to normal levels after from two to three months was an important factor in the relative slowing of the rate of progress after prolonged dieting.

The subjective changes which the patients reported constituted some of the most striking clinical results of the treatment. Contrary to their expectations, they were not weak and hungry. It was rare for a patient to complain of hunger after the first two or three days. In fact, one is astonished by the unanimity with which patients reported a return of vigor, a feeling of well being and resistance to fatigue which had been lost for months or even years. A great variety of obscure symptoms and minor ailments disappeared. Headaches, which afflicted so many of these patients, some even migrainous in type, were relieved in every instance, and usually within the first two weeks. Dyspnea and orthopnea diminished rapidly. Minor skin disorders were frequently relieved. Intertrigo disappeared or became easy to control in every case in which it was found. In one case, diagnosed epidermophytosis, and in another presenting such annoying pruritus vulvae that oxyuris infestation was seriously considered, complete relief was obtained in three and six weeks, respectively. The symptomatic improvement which all patients experienced far outran the rate of weight loss and was far greater than could be accounted for by the mechanical relief from a burden of from 5 to 10 pounds. Accompanying the disappearance of unpleasant symptoms, there was very frequently an additional return of *joie de vivre.* This factor was of real significance in girls of school and college age who not only found a relief from a social semiostracism on account of the excess weight but also were again able to wear clothes of a style proportionate to their years.

The objective changes appeared somewhat more slowly. Very striking changes in the circulatory apparatus were among the first to appear. The rapid depression of elevated blood pressures was one of the commonest and earliest signs. Changes in the skin were always noted when any large loss of weight was secured. There was a certain amount of flabbiness resulting from the removal of the subcutaneous fat from beneath a grossly overstretched skin. With the passage of time the elasticity of the skin was largely restored but with the appearance of the characteristic striae. However, this loose skin was encountered only in the areas over the great fat depots such as the abdomen, the thighs, the buttocks and, to a less extent, the breasts and shoulder girdle, parts which are usually not exposed. On the exposed surfaces, such as the face and the forearms, the skin changes were of quite different character. A caution was given to approximately the first twenty-five patients with reference to the possible development on the face of wrinkles and the classic "drawn expression." It is now no longer given because it was found unnecessary. Except for an occasional deepening of the nasolabial fold and a flabbiness of the neck resulting from the removal of a "double chin," no wrinkles developed. The "drawn expression" was never seen. These patients looked better and younger because of a clearer skin and more animated expression. It is felt that the wrinkling and drawn expression of the face which are so often described are due to starvation, dehydration or other physiologic strains and not primarily to the removal of the subcutaneous fat of the face.

In the series of patients that has been described, there were 26 men and 161 women. The treatment is obviously equally applicable to the two sexes. On the whole, the men respond more rapidly than the women. This fact is quite in accord with the expectation in view of the higher energy expenditure in men.

Adolescents and the elderly, who are thought to bear reduction measures poorly, were treated in this series as all other patients. A girl, aged 12 years, was reduced from 208½ to 164½ pounds, 44 pounds in twenty weeks, with nothing but marked improvement in her physical and mental equipment. Another girl, aged 16 years, was reduced from 223 to 143 pounds, 80 pounds in twenty weeks. She not only improved mentally and physically but a dysmenorrhea of three years' standing disappeared and has not returned in three years. At the other extreme of life, a woman, aged 67, came into the office walking with great difficulty. She was having from 15 to 18 extrasystoles a minute and her blood pressure was 240 systolic and 110 diastolic. She was reduced from 278 to 182 pounds, 96 pounds in twenty-four weeks, an average of 4 pounds a week. After the first two weeks, her extrasystoles disappeared. Her blood pressure after four weeks of dieting was 135 systolic and 80 diastolic, and for the two years after, when it was followed, it did not go over 150 mm. After four weeks, she began doing housework and marketing with ease and comfort. This age range, 12 to 67 years, would seem to cast doubt on adolescence and senescence as contraindications to the reducing treatment if sound metabolic principles are followed.

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[3] Probable true body weights corrected for possible water shifts.

[4] On the basis of these figures, the patient was metabolizing 3,133 calories a day. The average basal calories for the period were 2,113. The total metabolism would be, therefore, basal plus 48 per cent. If the method of estimation of true body weight has not eliminated the possible errors from swings in water balance, the estimation of body fat lost may be too high and likewise the ratio 4.3 may be too high. However, if the caloric output is calculated on the basis of basal calories alone, the metabolic mixture has a ratio of 3.5 to 1. The actual ratio must be higher than 3.5 and is probably close to 4.3.

Although some of the women patients had passed the menopause, many were in the age period of active menstruation. More than half of these women admitted on direct questioning a scantiness of the menses and more than ordinary discomfort. All but a very few reported a more abundant flow and less discomfort after weight reduction. In twenty or more the preexisting dysmenorrhea and its improvement after dieting was so marked that the facts were volunteered without direct questioning. Some cases were very striking. For example, a woman, aged 23, began to menstruate at the age of 14 and continued regularly and comfortably for eight years until she was 22. At 18, she weighed 150 pounds and gained 50 pounds in the next four years. Then her menses, after having been normal for eight years, during the last four years of which there had been a rapid weight gain, stopped completely. In the next year she gained 59 pounds and presented herself weighing 259 pounds and having missed eleven menstrual periods. Menstruation began after one week of dieting and, in the next twenty-six weeks, while being reduced 83 pounds, she menstruated six times. The periods were somewhat irregular but did not cause discomfort. Observations of this character suggest that excess weight and menstrual disorders are not the result of a primary endocrine imbalance, as is frequently supposed. On the contrary, the menstrual disorder, which is the principal index of the alleged endocrine imbalance, is probably due to a faulty nutrition with its inevitable resultant faulty metabolism at a physiologically impressionable period of the patient's life.

All patients were thoroughly examined for contraindications before treatment was undertaken. No doubt a tuberculous lesion would be a contraindication to dieting of this character, but the list of other reasons has been growing smaller as experience increases. Patients with myocardial lesions are supposedly poor subjects for reduction and they probably are. Among our patients there were eight with definite evidences of myocardial damage and many with symptoms, such as dyspnea, swelling of the feet and palpitation suggesting minor grades of myocardial insufficiency. These patients were dieted exactly as the others and, with one exception, the results were just as gratifying. The exception was a case, shown after six months of dieting, to be complicated by a psychopathic lesion leading to moral turpitude for which he was confined. A large number of diabetic cases of the obese senile type have entirely cleared up by this form of dieting alone.[5]

A few obese patients with advanced cardiovascular-renal disease have been kept on similar diets under hospital conditions. There was definite symptomatic improvement in these cases but probably no appreciable influence on the prognosis. There have been no disasters or even minor misfortunes. The conception has developed that, regardless of the type of handicap from which a patient suffers, the more nearly the physiologic load approaches that for which the particular body was designed, the better he will be able to cope with his disability.

INTERPRETATION OF RESULTS FROM BACKGROUND OF METABOLIC STUDIES

The very satisfactory clinical results that have been obtained in these cases were as surprising as they were gratifying in view of some of the popular ideas with reference to the necessity for moderation in dietary restrictions and for slow rates of reduction. Certain metabolic studies that have been carried out on limited groups of patients seem to afford partial explanations for the excellent results.

Since the work of Chittenden, it has been recognized that patients can be kept in nitrogen equilibrium on minimal amounts of protein only if sufficient fuel food other than protein is given. A series of five patients whose average weight was 157.5 Kg. was given a maintenance diet for this weight consisting of 69 Gm. of protein, 235 Gm. of carbohydrate, and 128 Gm. of fat, a total of 2,403 calories. This represented 1.1 Gm. of protein per kilogram for the ideal weight, but only 0.4 Gm. for the actual weight. They remained in nitrogen equilibrium at a level represented by 0.16 Gm. of nitrogen output per kilogram of ideal weight. The reducing diet for them was 59 Gm. of protein, 10 Gm. of carbohydrate and 7 Gm. of fat, a total of 335 calories. On this there was a slow nitrogen loss, averaging for the group 2 Gm. over five and one-half weeks. In spite of this nitrogen loss there was no depression of the level of nitrogen metabolism, it being maintained at a level represented by 0.17 Gm. of nitrogen output per kilogram of ideal weight.[6] The addition of only 20 Gm. of carbohydrate, making a total of 0.3 to 0.5 Gm. for each gram of protein and a total caloric intake of 445, brought these patients into nitrogen equilibrium at a level represented by 0.15 Gm. of nitrogen output per kilogram of ideal weight. This level apparently could be maintained indefinitely in one patient; one patient reduced 67.1 Kg., for a period of 260 days. The absence of depression of nitrogen metabolism shown by these patients with an intake of 0.5 Gm. of protein per kilogram of their actual weight, and their ability to maintain nitrogen equilibrium on this protein intake with an additional fuel intake of 29 Gm. of carbohydrate and 9 Gm. of fat, a total caloric intake of 445, is in striking contrast with the normal series of Beard,[7] and Denis and Borgstrom,[8] and the series of Benedict.[9] This finding suggests that vital starvation tissues have not been wasted and fits in well with the feeling of well being observed clinically in a long series of these patients.

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[5] The dextrose equivalents of these diets range from 70 to 75.

[6] Strang, McClugage and Evans (footnote 1).

[7] Beard, H. H.: Protein Intake of Medical Students, Am. J. Physiol. **82**:577 (Nov.) 1927.

[8] Denis, W., and Borgstrom, P.: A Study of the Effect of Temperature on Protein Intake, J Biol. Chem. **61**:109 (Aug.) 1924.

[9] Benedict, F. G.; Miles, W. R.; Roth, P., and Smith, H. M.: Human Vitality and Efficiency Under Prolonged Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1919.

The oxygen exchange in obese patients is, on the average, approximately 25 per cent greater than in persons of normal weight. An example of this phenomenon was previously described. It may again be stressed that the degree of excess metabolism is not apparent in the usual form of expression of basal metabolic rate. If the total calories per hour are considered or if the metabolic rate is calculated with regard to the ideal weight of the patient, the high level is at once appreciated. The oxygen exchange on five obese patients who averaged 94 pounds overweight, when calculated by the Du Bois formula showed basal metabolic rates within the limits of normal, minus 3 per cent. The calories per hour for these patients averaged 71.[10] If these patients had been of normal weight, the calories per hour giving a normal basal metabolic rate would have been 58. Calculating their actual calories per hour on the basis of the ideal instead of the actual weight, the basal metabolic rate would have been plus 23 per cent. This represented a metabolic rate associated with several symptoms, certainly easy fatigability. On dieting according to the principles mentioned, the average calories per hour were reduced to 61. This, calculated on their average ideal weight, yielded a basal metabolic rate of plus 6. In regard to this diminution in the level of metabolism during the course of dieting, two important observations must be made. First, the rate at which the level of metabolism dropped was much faster than the rate at which weight diminished. Second, the metabolic level diminished rapidly at first and then more gradually as it approached the level at which the individual should operate under ideal conditions. Regardless of the duration of the dietary period, it rarely went below this limiting value. These facts may perhaps be associated with certain clinical manifestations. The initial high level of metabolism was probably related to the relative circulatory insufficiency of many patients as well as to their relatively poor response to various types of additional physiologic strain. They were merely existing under physiologic loads which required the constant use of a large fraction of the normal reserve capacities. After but two or three weeks of dieting, practically all patients reported a marked increase in functional capacity. The actual and relative weight losses were quite insufficient to explain this uniform phenomenon. It was felt that these sensations were related rather to the relatively sharp drop in metabolic level with a consequent reduction in physiologic load. A further point of great practical importance was associated with the diminution of metabolic level; namely, the inevitable decrease in rate of weight loss. In the early weeks of dieting, patients had great enthusiasm as they watched numbers of pounds drop off. As the rate of loss became less, the patients wanted to know why this should occur in spite of adherence to the same diet.

The distribution and temporary storage of water are phenomena of great importance in normal individuals. In obese persons the normal storage capacity is greatly increased owing to the great capacity of fat tissue for water storage. During periods of rapid fat tissue loss, the spontaneous alterations in this storage capacity that normally occur were greatly exaggerated and reached a considerable magnitude. Although our own data bearing on this phenomenon have not yet been compiled, reference may be made to the studies of Newburgh which deal with this point. In the early days of dieting the tissue loss was accompanied by the dumping of stored water. Great weight losses were noticed on the scale. Subsequently this water was replaced in part or in toto. Thus, although the food intake remained restricted, the patient might fail to lose or might even gain weight. Eventually, however, another period of water elimination occurred with a sharp weight change. These cycles of water shift became more conspicuous as the dieting period increased. All the closely studied patients exhibited this phenomenon to an exaggerated degree after the third month. It must be emphasized, however, that the loss of fat continued according to schedule regardless of these water shifts. An appreciation of the magnitude of this phenomenon is essential. The failure to understand these water shifts is probably responsible for the discouragement of a large number of patients after two or three months of dieting and also for the impressions of many persons that it is possible to hold weight or gain weight on low caloric intakes.

The index of creatinine excretion of Folin[11] modified by Shaffer[12] and called the creatinine coefficient has been suggested as a measure of muscle mass. This coefficient determined on five obese patients, figured on the average actual weight, was 3.4, indicating a deficiency of muscle mass. Figured on the average ideal weight it was 6.7, a normal figure. These five obese patients, maintained for many weeks on the reduction diet of 59 Gm. of protein, 10 Gm. of carbohydrate, and 7 Gm. of fat, a total of 335 calories, showed, on determinations over this period during reduction and after, no variation in the excretion of creatinine.[13] This indicates that the excess weight of the obese is inactive fatty tissue and that by this dietary reduction the muscle mass is not diminished. In the undernourished the creatinine coefficient is low. Five underweight patients gave an average creatinine coefficient of 5.8, a figure below normal. This depression became even more marked, a creatinine coefficient of 4.4, when calculated for the ideal weight. During dietary correction the index of creatinine excretion increased with the weight up to a certain point. Beyond this it remained stationary, because the increase in weight was then in adipose tissue alone. This shows that, in real starvation, muscle mass, as evidenced by the index of creatinine excretion, is lost. It further suggests that the five obese patients losing an average of $77\frac{7}{10}$ pounds in twenty weeks on a daily intake of less than 450 calories, who showed no change in the creatinine index, were not being starved.

DuBois,[14] and Strang and McClugage[15] have shown that the rise in total caloric output in response to a fixed meal, the specific dynamic action of the meal, was quantitively the same in the obese and in normal persons. Strang and McClugage also presented evidence that the feeling of satiation after food may be related to the attainment of an optimum rate of change of metabolism in consequence of the rate at which this extra heat is produced. It is well known that protein foods produce the most intense heat of reaction. The relative preponderance of protein in the food supplied by these diets, but more especially the use of normal amounts of protein, insures an intensity of specific dynamic action which approaches the optimum rate of change of metabolism. It is quite possible that the absence of hunger and the feeling of contentment with the food given to patients undergoing treatment were related to these specific dynamic phenomena.

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[10] Strang and Evans (footnote 1).

[11] Folin, Otto: Laws Governing the Chemical Composition of Urine, Am. J. Physiol. **13**: 66, 1905.

[12] Shaffer, P. A.: The Excretion of Creatinine and Creatine in Health and Disease, Am. J. Physiol. **23**: 1, 1908.

[13] McClugage, Booth and Evans (footnote 1).

[14] Du Bois, E. F.: Recent Advances in the Study of Basal Metabolism, J. Nutrition **3**: 217 (Sept.) 1930.

[15] Strang, J. M., and McClugage, H. B.: The Specific Dynamic Action of Food in Abnormal States of Nutrition, Am. J. M. Sc. **182**: 49 (July) 1931.

These attempts to correlate variations in clinical symptoms with the carefully determined laboratory data are admittedly subject to certain criticism. The interpretations are to be regarded as tentative only and subject to revision or complete retraction when new or conflicting evidence appears.

WEIGHT REDUCTION BY INCREASE OF ENERGY OUTPUT

The method of weight reduction that has been described is primarily concerned with the reduction of the daily intake of energy. It must be recognized that an increase in total energy output will also promote a caloric deficit. Measures to this end are of two classes: those which increase the extrabasal calories, and those which increase the basal energy exchange.

The extrabasal energy output is increased most commonly by systematic exercise or useful physical work. It is obvious that there are distinct limitations to the effect on the total daily output which may be thus obtained. Except in employments involving severe manual labor, the total extrabasal calories rarely exceed the basal calories. Of these extra calories an appreciable fraction represents the energy utilized in the routine of existing and but a relatively small proportion represents useful work or what would be recognized as physical labor. In order to secure a real caloric loss, such as from 300 to 400 calories, some form of genuine work carried out over a significant period of time is essential. Simple spiritless routine exercises are beneficial as mental and circulatory stimulants and perhaps have an influence on muscle tone. They cannot, as usually performed, have a significant caloric equivalent. Unfortunately, these procedures stimulate the appetite with the result that the subsequent excess food intake far exceeds any slight deficit which might have been produced. Practically, however, the attainment of adequate caloric deficits by these means is quite out of the question. Obese persons at rest have high rates of metabolism. The performance of the simple exertions of existence makes serious inroads on their reserve capacities. The circulatory apparatus in particular has been subject to years of chronic strain and its impending exhaustion is only too frequently the reason for the desire to lose weight. The persons who most require rapid weight reduction are the very ones in whom an increase of output of significant degree is accompanied by very real danger.

The agents that may increase the energy expenditure by elevation of the basal metabolic rate are distinctly more popular. Thyroid is the most common substance in actual use. An important reason for the high regard for this method of treatment is that patients may "take the cure" with but slight interference with the very pleasant habits of life which produced the obese state. Unquestionably, weight loss can be secured by an elevation of the total energy output but, exactly as in the first class of agents, a reasonable rate of weight loss requires a strict limitation of intake in addition to the use of the drug. Thyroid is a powerful drug, one of whose actions is the increase in the general level of metabolism already too high in the obese.

From what has gone before, it will be apparent that, in our opinion, the use of this agent is irrational even when not positively dangerous. A further increase of metabolism and especially the basal fraction makes additional inroads on the physiologic reserves just for the purpose of existence and seriously limits the balance available for the necessary activities of life, and the margin of safety for true physiologic crises. In addition to its effect on oxygen exchange, thyroid extract produces a marked increase in nitrogen metabolism. The nitrogen elimination is increased distinctly as long as any storage protein remains. The ultimate result of a further use may be regarded as still unsettled.

The symptomatic improvement which our dietary patients experienced was described in considerable detail. The definite increase in vigor which appeared within a few days was regarded as associated with the comparatively rapid drop in level of basal metabolism whereby less of the physiologic reserves were required for mere maintenance. The absence of the characteristic phenomena of starvation were considered in respect to the maintenance of the normal nitrogen metabolism. The absence of hunger was regarded as perhaps related to the persistence of an approximately normal level of metabolism such that the specific dynamic action of the food employed produced a rate of change of metabolism adequate for satiety. Any reduction treatment requires long periods of time. The more conspicuous the symptomatic improvements and the more comfortable the patient, the longer he will persist. The restoration of a metabolism which is quantitatively and qualitively approximately normal is an important factor in this respect. Therefore, it is strongly felt that, by the use of thyroid, these very important desiderata are jeopardized while at the same time a not too significant increase in rate of weight loss is secured.

Although in our opinion the routine use of thyroid for reduction is to be condemned, thyroid does have a definite place. Of the nearly 200 patients so far treated, 4 patients, roughly 2 per cent of the total, were given thyroid. It has been found that obese patients whose initial metabolic level is not greatly above normal may depress these levels after a few weeks of dieting to the lower limits of normal. These patients are either young excessively healthy persons or persons who have been confined to bed for months prior to beginning treatment. In these cases weight loss and symptomatic improvement continue by diet alone but, in view of the low total energy output, the caloric deficit is small. The rate of weight loss is therefore also small, a pound a week. Very few patients have the moral stamina to adhere to a rigid diet when the scales show a loss of only 4 pounds a month. In these cases, also, the body is operating with but slight demands on the physiologic reserves. Only sufficient thyroid is given to elevate the metabolic level to normal or slightly above. The use of thyroid is therefore not primarily dangerous and the increase in rate of weight loss promotes satisfaction in the patient. One woman, aged 49, who weighed 259 pounds, was first seen after three months in bed because of another disability. Her basal calories per hour were 59 with a basal metabolic rate of minus 26 for her actual weight and minus 8 for her ideal weight. After four weeks of dieting, the calories per hour were 54 with a basal rate of minus 34 for actual weight and minus 18 for ideal weight. Enough thyroid extract was given to elevate and maintain the total calories per hour at 67 to 70. The diet was not changed. The increase in rate of weight loss greatly improved the cooperation of the patient.

These patients perhaps had hypothyroid tendencies. However, they presented no clinical evidence of diagnostic value. Furthermore, the laboratory data prove them to have been within normal limits according to the criteria employed. These facts are important in suggesting that there is no clinical evidence by which the rare patient in whom thyroid medication may be used to advantage may be, at the outset, picked out from the large group in which it is contraindicated. Only after a period of dietary treatment, during which the rate of weight loss has diminished until it becomes no longer practical and during which the basal metabolism has fallen to and remained at the low limits of normal, should thyroid be used. It may then be given to supplement the diet under careful supervision with frequent checks of metabolic level and only in amounts sufficient to maintain a normal metabolism.

SUMMARY

1. The excess weight of the obese is inactive storage tissue.

2. The level of oxygen exchange in the obese is high when related to the ideal weight, which is a measure of the actively functioning body tissue.

3. Diets containing 1 Gm. of protein and 0.6 Gm. of carbohydrate per kilogram of ideal weight and no fat, other than that inseparable from the protein ration, afford menus of from 400 to 600 calories on which these patients lose weight rapidly.

4. The patients are not hungry. They report an increased feeling of well being and resistance to fatigue. Headaches, minor disorders and frequently dysmenorrhea are relieved early in the period of dieting.

5. The satisfactory clinical results are obtained because only the inactive excess fatty tissue is being removed. The vital tissues are not wasted as in starvation, as shown by careful studies of oxygen, nitrogen and creatinine metabolism.

6. Because of the physiologic strain which obesity throws on the organism, one evidence of which is the high level of basal metabolism, thyroid extract and other agents which increase the total energy output are contraindicated.

7. A few patients, perhaps not over 2 per cent, do not lose weight with practical rapidity by diet alone. These patients cannot be differentiated from the others by history or physical examination. They may be recognized with assurance by careful observations of the rate of weight loss and of the basal metabolism during a period of dieting. In these patients, carefully regulated doses of thyroid are beneficial in conjunction with dietary treatment.

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ABSTRACT OF DISCUSSION

Dr. Henry J. Spencer, New York: With regard to the relationship of the protein intake to the weight of the active body tissue I have found substantially what the authors report. On maintenance diets I found that the protein utilized was about 0.8 Gm. per kilogram of ideal body weight. If then the diet was changed to a submaintenance, low calory diet of about 750 calories daily the protein utilization rose to about 1.1 Gm. per kilogram, an increase of about 40 per cent. Under the latter regimen about 0.2 Kg. of weight was lost daily. I would warn against an undersupply of protein. To my mind this is a real danger. Most obese persons largely eschew protein even when the diet is reduced and they must be distinctly directed to take it. Practically applied, the figures which I have given mean 7 ounces a day of lean meat for maintenance diets and 10 ounces for the 750 calory diet for the average overweight individual. In 1929 Du Bois, McClellan and Spencer reported on the specific dynamic action of protein in obese individuals, which was found the same as for persons of normal weight. I consider this property of protein valuable for practical use in the reduction of weight. Carbohydrate is more efficient than fat in sparing protein. I found no optimal point in the carbohydrate-protein ratio while working with ratios ranging from 0.25 to 1 up to 4 to 1. My reducing diets contain from 0.25 to 0.6 Gm. of carbohydrate to 1 Gm. of protein. I can add nothing to, could only cite similar instances of, what the authors have to say regarding the relief of amenorrhea and the host of minor complaints such as headaches, backaches and sleeplessness. I shall only repeat what I said elsewhere about five years ago, that vascular changes may have advanced to the irreversible point and then treatment can only retard this advance. During treatment the transient period of high fat metabolism is unavoidable and can in no wise be worse than the antecedent state of obesity and leads to a far better state of affairs.

Dr. Burgess L. Gordon, Philadelphia: It is interesting to note in these studies that there is present in obesity a high level of oxygen exchange as related to the ideal weight of the patient. Stated in another way, it is possible, so far as useful tissue is concerned, that potential if not actual thyrotoxic phenomena are present. This should set at rest the impression that decreased functioning of the thyroid is a factor in obesity and emphasize the danger and perhaps havoc that may occur in promiscuous administration of thyroid preparations. It is interesting to note also that striking results were obtained in the use of low calory diets. I am wondering whether these could be obtained as easily in the majority of obese individuals of the average clinic population. This question is raised because in the experiences in the nutrition clinic at the Jefferson Hospital it has been difficult to reduce considerably the caloric intake. The temperament of our patients, their associations, their natural love for food and leisure are not conducive to rigid food restriction. Furthermore, weakness, fatigue, nervousness and hunger, of which they complain, frequently add further difficulties in treatment. For this reason a regimen consisting of a moderate reduction in the intake of starch (about one half of the usual intake for the given patient) maintaining essentially the same protein figure as the authors have suggested, but without change in the fat ratio, and the administration of small amounts of readily available carbohydrate between meals has been used. A satisfactory loss of weight has been obtained in the majority of patients. It is assumed that the reduction of starch is sufficient to favor loss of weight, the carbohydrate administered between meals being utilized largely to provide immediate energy and relieve symptoms. In general the exact regimen that may be employed is largely a matter of preference. The important points, as the authors emphasize, are that patients may lose weight comfortably on low caloric diets and that the thyroid is not the usual contributing factor in overnutrition. Successful treatment depends essentially on careful study to rule out masked disease that may contraindicate loss of weight, fair and helpful cooperation of the patient, and the selection of a diet that will not induce rapid loss of weight (more than 1 to 2 Kg. weekly) or decrease markedly the intake of important food constituents.

Dr. J. S. McLester, Birmingham, Ala.: The authors have almost convinced me—but not entirely. I am sure their theoretical considerations are sound, but there are two reasons why their very low calory diets have seemed to me to be inadvisable. First, the person who attempts this type of diet is apt, in my experience, to become weak and easily exhausted; he may grow wrinkled and old in appearance. And second, of great importance in the reduction cure is the patient's education. The object of treatment is not solely to reduce the weight but also to inculcate new tastes and habits. The appetite and tastes of the obese person are as a rule perverted, and he eats too much. It has been found, however, that if such a person restricts himself to a limited, well balanced diet, he will in time experience a revision of his tastes and appetite so that in the end he is permanently content with a smaller amount of food. With this object in view, then, the ideal reduction diet should be one which, in its composition and to some extent in its total caloric value, approximates the regimen on which the patient should live the rest of his life. It should not be unusual in composition, nor should it be too drastic. It has seemed to me that with the slower tempo the results are more permanent. It must be admitted, however, that the proof of the pudding is the eating, and the authors have achieved admirable results.

Dr. Frank A. Evans, Pittsburgh: It is true that one of the most important parts of this method is obtaining cooperation by the patient, and in one of my earlier publications I said that one handles these patients more firmly than he would perhaps care to handle all one's private patients. There are a good many people who are overweight who need or want reduction, who have been in the habit of getting what they want without any great effort. Some of those people, if one takes time to explain what it means, what they have to do, will drop out. Of those who stay on the diet two weeks the wastage is very small. By that time their hunger is gone and they feel so much better that one cannot get most them to quit. Dr. McLester also said something about reeducation in dietary habits. It is an important factor. Dr. Gordon, as is well known, has administered carbohydrate at periods during the day when reserves are lowest. That, of course, works. If one gives carbohydrate at those periods, as outlined by Dr. Gordon, and as we have done, but not in this series, the patients come down, but not as well, because the calories are up a little. We have found that appetite and hunger can be controlled perfectly well by plain water. Dispensary patients, as Dr. Gordon mentions, are not fit material for this type of work. They either do not have intelligence to understand or the character to carry it through. All in our larger series were office patients, doing their regular work, doing their own cooking, or having it done in their own homes. The experimental work, of course, was done under controlled conditions in the metabolic pavilion of the hospital; but these patients are not included in the long series because with the several different technics employed with them it would have lengthened the discussion.

EXPERIENCES WITH PERIARTERIAL SYMPATHECTOMY IN FRACTURES OF THE LOWER EXTREMITY*

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One of the greatest practical problems in industry is the speedy rehabilitation and economic restoration of the injured. Accidents resulting in fractures of bones have always exacted a heavy toll in temporary total disability, and when these fractures are complicated by delayed union and nonunion the loss in working days and the attendant dire consequences become greatly increased.

Although the clinical measures which should insure and promote the solid union of fractured bones are becoming more and more standardized, nevertheless instances of delayed union and nonunion do unfortunately occur. These, in addition to being due to many obscure causes, may be the result of either improper treatment, local mechanical interference or insufficient local reaction about the bone fragments.

One of the fundamental factors in osteogenesis is an adequate and liberal supply of blood. Lacey [1] has recently again stressed its importance. Therapeutic measures which should produce and promote a good blood supply in fractures have always been strongly emphasized. These found their earliest expression in the passive hyperemic treatment advocated by Hilgeneiner,[2] Bier [2] and others, and today consist of the immediate institution of radiant heat and gentle massage whenever practical. These means certainly stimulate and increase the variable hyperemic phenomena normally present in all fractures, for active vascular congestion and extravasation are essential in preparing a fertile field for good callus formation.

Leriche [3] has shown that following any trauma a reflex vasoconstriction occurs which after a variable time is followed by a dilatation of the neighboring vascular system. This hyperemia which is reflexly produced can be further increased and abetted by a periarterial sympathectomy.

While this operation has been criticized by some as incomplete and transitory and by others as being ineffectual, the fact remains that following a proper application of this procedure a definite train of physical changes occur. After the adventitia has been thoroughly removed from the vessel wall, the primary contraction of the arterial tree is followed within a few hours by a vasodilatation and a marked hyperemia. The resulting increase in blood pressure, skin temperature and vascular tonus have been shown to remain for an appreciable length of time.

If periarterial sympathectomy offers the possibility of producing an active hyperemia with all that it supplies, then this procedure should have a logical application in the treatment of certain groups and types of fractures.

Uffreduzzi [4] conducted a series of experiments in young rabbits in which the ulnas were simultaneously fractured and on one side a periarterial sympathectomy was performed. Roentgenologic and histologic examinations were made from the sixth to the fiftieth day to determine the extent of the processes of repair. It was definitely established that the periarterial sympathectic decortication exercised a distinct stimulating influence on new bone formation. The normal rate of development was accelerated, and the period necessary for firm union was materially shortened. Colle and Pecco [5] and Fontaine,[6] working along lines similar to those outlined by Uffreduzzi, practically corroborated his results. We, together with Kassaback, observed a series of dogs in which both tibias were fractured and a femoral periarterial sympathectomy was performed on one side. An increase in the vascularity and the callus formation on the sympathectomized side was noted by femoral arterial injections of iodized rape-seed oil and by roentgen examinations. These experimental data will be reported in detail elsewhere.

Palma [7] investigated a number of adult rabbits in which both radii were fractured and the lower ganglion of the cervical sympathetic was removed. He concluded after careful roentgen and tissue studies that an active hyperemia was produced especially in the region of the fracture and that the process of callus formation and transformation were accelerated on the ganglionectomized side. Other investigators [8] have reported similar findings. They have further stated that the excision of the sympathetic ganglion, which is certainly a more complete operation, is accompanied by better effects than that of periarterial neurectomy, which at best is an incomplete procedure. While this is undoubtedly true, ganglionectomy is much more hazardous, and it is extremely doubtful whether its application in fractures would be justifiable, since simpler measures have proved to be almost as efficacious.

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* From the Surgical Service of the Beekman Street Hospital.

* Read before the Section on Orthopedic Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Lacey, J. T.: Ann. Surg. **89**: 813-847 (June) 1929.

[2] Cited by Uffreduzzi (footnote 4).

[3] Leriche, R.: Ann. Surg. **88**: 449-469 (Sept.) 1928.

[4] Uffreduzzi, O.: Arch. ed atti d. Soc. ital. di chir. **31**: 1-130, 1924.

[5] Colle, G., and Pecco, R.: Arch. ital. di chir. **21**: 1-37, 1928.

[6] Fontaine, R.: Rev. de chir. **64**: 95-104, 1926.

[7] Palma, R.: Ann. ital, di chir. **4**: 85-103, 1925.

[8] Uno: Arch. f. Japan. Chir. **3**: 106, 1926. Horton, B. T., and Craig, W. M.: Proc. Staff Meet., Mayo Clin. **4**: 240 (Aug. 7) 1929.

The results of animal experimentation in general and on the vegetative nervous system in particular cannot be translated too freely into human terms, for their applications may not be similar. Still, sufficient clinical evidence reported by reliable observers has been accumulated to justify the further employment of periarterial sympathectomy in delayed union and nonunion fracture cases. This simple procedure cannot be considered a universal panacea. Not every case subjected to it has responded, but there is no remedy that will always guarantee solid union. A study of the case reports of Futh,[9] Rubaschow,[10] Fontaine,[6] Leriche,[3] Floresco,[11] Bressot,[12] Stropeni,[13] Gaudier [14] and others seems to bear witness to the efficacy of this operation in cases of delayed union and of nonunion.

Femoral periarterial sympathectomy was performed in seventeen selected lower extremity fractures in the surgical service of the Beekman Street Hospital. Thirteen involved the shafts of the tibia and fibula and four the distal half of the femur. Seven were recent fractures and ten were those in which the clinical course and the roentgen examinations pointed to a possible nonunion. The operation was done in fresh fractures (group 1) to determine whether callus formation could be hastened, and in fractures with delayed union (group 2) to ascertain whether callus formation and transformation could be stimulated.

Table 1.—*Cases of Recent Fractures*

Case Number	Diagnosis	Clinical Union	Days of Hospitalization
1*	Fracture right tibia and fibula, middle third	38 days	47
2*	Fracture left tibia and fibula, middle third	29 days	33
3*	Compound fracture right tibia and fibula, lower third	53 days	65
4*	Fracture right tibia and fibula, middle third	36 days	41
5*	Fracture right femur, lower third	33 days	70
6†	Fracture tibia and fibula, lower third	38 days	44
7‡	Compound fracture right tibia and fibula, lower third	37 days	113 (complicated by fracture of fourth lumbar vertebra)

* Periarterial sympathectomy performed from one to two hours after admission.

† Periarterial sympathectomy performed nine days after admission.

‡ Periarterial sympathectomy performed nineteen days after admission.

Periarterial sympathectomy in fractures may be condemned by some as a radical procedure. But in this series neither untoward complications nor detrimental results followed its application. Naturally, femoral sympathectomy was done only on those patients who were considered good surgical risks and, whenever necessary, it was performed while the patient was in bed, with the fractured limb in traction and suspension.

The Leriche technic of periarterial sympathectomy was carefully followed, and the common femoral artery was adequately exposed in Scarpa's triangle. The beneficial effects following arterial decortication in this area are best observed in the increased blood supply to the leg, but the lower half of the thigh and the corresponding femoral shaft also share in this hyperemia. While usually it was not practical actually to measure the degree of hyperemia with the Pachon oscillometer and other instruments, because of the splints, it could always be rapidly appreciated within the course of a few hours after operation by the definite increase in the skin heat of the extremity on which operation had been performed.

The average period for clinical union in this group, with the exception of one case, a fractured femur, was thirty-six days, with a hospitalization of forty-seven days. Kennedy reviewed a series of similar fractures without sympathectomy, at the Beekman Street Hospital, and found clinical union in fifty days and an average hospitalization period of sixty-six days.

In table 1, it will be noted that in two cases periarterial sympathectomy was performed nine and nineteen days, respectively, after injury. As has been previously stated, the primary effect of any injury is a local vascular dilatation and increased circulation, which lasts from one to two weeks. Leriche, therefore, logically advises this procedure in fractures after the primary effect of the trauma begins to subside, at which time periarterial sympathectomy should prolong the local hyperemia. The average period of clinical union in these two cases was twenty days after sympathectomy and thirty-seven days after injury, which was approximately the same as in those cases in which operation was performed immediately after injury.

While clinical union was undoubtedly hastened by this procedure, examinations did not show that callus formation was accelerated. However, it is quite common to observe firm clinical union before callus is present roentgenographically. In this series of recent fractures of both bones of the leg, one patient showed callus at the time of discharge. The others were followed in the outpatient department, where further observations were too infrequent to establish the exact time of callus appearance; roentgen examination, however, revealed bony union in all cases at subsequent examinations.

Patient 5, aged 51, who presented fracture of the femur, showed good callus in twenty-four days and firm union in thirty-five days (table 1). Although this callus formation and union can be considered well within the lower normal limits, no deduction can be drawn from this solitary case.

This series is admittedly small, but certain facts are nevertheless interesting and suggestively significant. The sympathectomized cases of fracture of the tibia and fibula showed clinical union about eleven days sooner and were hospitalized nineteen days less than the control series, and no fracture showed a tendency to delayed union.

Group 2, which consisted of ten cases in which union did not occur, included seven cases of fracture of both bones of the leg and three cases of fracture of the distal half of the shaft of the femur (table 2).

The seven cases of fracture of the tibia and fibula disclosed no evidence of either beginning union or callus after an average period of seventy days. In the comparative series of similar fractures previously cited, the average period for beginning callus was forty-five days and for firm union forty-nine days. Therefore the cases herewith described might be considered instances of potentially delayed union.

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[9] Futh, A.: Ztschr. f. Chir. **52:** 308. 1925.

[10] Rubaschow: Ztschr. f. Chir. **52:** 308, 1925.

[11] Floresco, A.: Rev. d'orthop. **16:** 503-510 (Nov.) 1929.

[12] Bressot, E.: Rev. de chir. **65:** 5-21, 1927.

[13] Stropeni, L.: Arch. ital. di. chir. **15:** 661-672, 1926.

[14] Gaudier, H.: Bull. et mém. Soc. nat. de chir. **53:** 959-960 (July 9) 1927.

In six of the seven cases of fracture of both bones of the leg, femoral periarterial sympathectomy was performed from 47 to 111 days after injury, because of false point of motion and absence of callus by roentgen examination. The remaining case (case 14) was an old malunited fracture of the distal third of the tibia and fibula. An open operation was performed to correct the deformity present, and, when union was absent ninety-three days later, a periarterial sympathectomy was done; union ensued eighteen days later.

Six of these seven cases showed evidence of firm union in from eighteen to twenty-nine days after femoral sympathectomy. In case 13, a compound fracture of the lower third of the tibia and fibula was still ununited when examined thirty-one months later. This case cannot be ascribed to the failure of periarterial sympathectomy. It was always suspected that nonunion was due to mechanical interference between the fragments, but this impression could not be confirmed because the patient persistently refused an open operation.

The results in the three cases of femoral fracture with delayed union may be briefly summarized. Periarterial femoral sympathectomy was performed in two cases; each fracture was ununited at the end of 270 days. In one (case 17), no effect was obtained, although open operation three months later disclosed fibrous union. In the other (case 16), a fracture complicated by chronic osteomyelitis, the roentgen films revealed callus thirteen days after sympathectomy and clinical union was firm in twenty-one days. Operation was performed in the third case (case 15) because of poor callus, which bowed under the strain when the patient was allowed up in a walking caliper three months after injury. Sympathectomy was performed 160 days after the original trauma, and 14 days later good callus and firm union were present.

Table 2.—*Cases of Delayed Union*

Case No.	Diagnosis	Reason for Sympathectomy	Time of Sympathectomy After Injury, Days	Clinical Union After Sympathectomy, Days
8	Fracture right tibia and fibula, lower third	1. False point of motion 2. Absence of callus	112	19
9	Fracture left tibia and fibula, middle third	1. False point of motion 2. Absence of callus	57	29
10	Compound fracture left tibia and fibula, lower third	1. False point of motion 2. Absence of callus	72	28
11	Fracture left tibia and fibula, lower third	1. False point of motion 2. Absence of callus	55	25
12	Fracture right tibia and fibula, lower third	1. False point of motion 2. Absence of callus	47	25
13	Compound fracture right tibia and fibula, lower third	1. False point of motion 2. Absence of callus	50	None
14	Malunion fracture left tibia and fibula, lower third	1. Osteoporosis distal fragment 2. Poor callus	93	18
15	Fracture shaft femur, lower third	1. Increasing bowing 2. Poor callus	144	11
16	Compound fracture lower third, left femur	1. False point of motion 2. Lack of callus 3. Osteoporosis	270	21
17	Fracture shaft lower third, left femur	1. False point of motion 2. Lack of callus	270	None

SUMMARY AND CONCLUSIONS

Periarterial sympathectomy seems to have a physiologic basis for application in the problem of fracture repair. In a series of seven recent fractures of the lower extremity there was a diminution of time in obtaining clinical union of eleven days, and in hospitalization of nineteen days, and no case showed a tendency toward delayed union. In a series of ten cases of delayed union in fractures of the lower extremity which were ununited after an average of seventy days, clinical union resulted twenty-one days after sympathectomy in eight cases.

The experimental and clinical evidence seems to justify a further trial of this operation in recent fractures and in those in which union appears to be delayed.

111 East Eighty-Eighth Street—670 West End Avenue.

ABSTRACT OF DISCUSSION

Dr. H. Winnett Orr, Lincoln, Neb.: I should like to have been told a little more thoroughly by the authors just what they employed in the way of splint methods. In this section particularly one is anxious to divide credit with any other method of treating fractures, adequate orthopedic measures as well. Without knowing otherwise just what happened in these cases, I should assume that good splint methods had been employed and would be inclined to give some of the credit to orthopedic methods as well as surgical methods. I am not ready to subscribe to this operation generally in the primary treatment of fractures. The operation is not, as the authors say, particularly difficult to do. There are certainly operative risks that should always be taken into consideration, and they particularly specify, of course, that this operation is not being recommended for general use in all fractures. At the same time they have made a fairly wide use of the operation and with gratifying results. Here is an operation which has shown decided value and which I think may be recommended in certain cases, particularly of delayed union, and which under proper conditions of the patient and otherwise I shall be disposed to employ. My own experience with periarterial sympathectomy has been satisfactory. I have not done it many times, but I did it three times in one patient, a man with Raynaud's disease and complicating foot lesions with a great deal of pain and disturbance of circulation. This man, who had had a popliteal arterial sympathectomy done in one leg, was so much relieved that he came back within two weeks to have it done in the other leg. Having had such a good result, I did a femoral sympathectomy on the second leg and the patient recovered and disappeared for three years. Then, because of recurrence of pain, he came back and had a popliteal sympathectomy on the same leg in which the femoral sympathectomy had been done before and got decided relief. To the general conclusions suggested by the authors I subscribe quite cheerfully, with the caution that in fresh fractures this operation should be reserved for special and particular cases.

Dr. Edwin W. Ryerson, Chicago: In considering this well designed and well executed piece of work, one must first ask what it is good for. I do not think that the work so far done has proved that it is good for anything in particular in the line of treatment of fractures because, as I read over the abstract of the paper, it seemed to me that the results were such as most orthopedic surgeons ordinarily get in the treatment of fractures. Most fractures do not have to have much done to them except proper mechanical orthopedic work. They do not necessitate special diets, special kinds of light, special kinds of operations. Most fractures, if they are held properly for a long enough time, will heal. The problem of the delayed union of fractures and the nonunion of fractures is much more complicated. Fractures with delayed union ordinarily do not need to have much done to them except to give them time enough to heal. One is in too much of a hurry in these cases. One does not want to let persons with fractures wait long enough before they begin to get back to business. This is foolish. Most fractures with delayed union will heal if one gives them time enough, whether one does a periarterial sympathectomy or not. The problem of ununited fractures, however, is different and it is in that problem that I think we shall see some extremely interesting and remarkable developments from the work that has been done and has been reported here this morning, because there are many cases in which ununited fractures will not unite, and will not unite for some reason that is not known at the present time. In the few obvious cases, of course, there is interposition of muscle and there is local reason for nonunion, of some sort or other; but there remains, on the other hand, a large number of ununited fractures for which nobody can assign the cause of the nonunion; and in these cases it seems to me that it is probably the lack of a proper blood supply. If this periarterial sympathectomy will produce a localized hyperemia at the site of the fracture, it may be of inestimable value. What I want to see is a report from the authors next year on a number of cases of ununited fractures, not recent fractures, not those two weeks old, but old ununited fractures in which apparently the cause of the nonunion is insufficient blood supply, and in which they will do periarterial sympathectomy and report excellent results from the treatment.

Dr. G. L. McWhorter, Chicago: I have been interested in sympathectomy for a number of conditions, including fractures, or rather the bad results of fractures, Buerger's disease and other vasomotor disturbances of the extremities. In Buerger's disease, sympathectomy probably is of little permanent effect. In some of the other conditions it may be of more benefit. I have had little experience in using sympathectomy for delayed union of fractures because I have felt that they will heal following the usual treatment, permitting a certain amount of muscle activity, by proper splinting, and sometimes by letting the patients walk when the fracture involves the legs. I have observed the most satisfactory results in two cases in which I have used periarterial sympathectomy in old fractures of the leg, one a perforating gunshot wound of the os calcis, and the other about the ankle. The first case had gone on four or five months and the patient had apparent healing of the fracture or the perforation but was unable to walk on his leg. This was due to pain, and not only did he have pain in this leg and foot, but there was a vasomotor disturbance proximal to the point of the perforating gunshot wound. This was evidently a vasomotor disturbance with a cold and painful foot and leg. I did a periarterial sympathectomy and three weeks after the operation he was walking on the leg without pain and the vasomotor disturbance had practically been completely relieved. The other case was somewhat similar but had not gone so long and the result was equally good, and I feel that from a group of perhaps twenty cases of sympathectomy I have done for various conditions, this is one condition in which it is definitely indicated. I know of no other condition in which it has produced equally good results. I should like to mention the technic of periarterial sympathectomy and I should urge it to be done as near as possible to the site of disturbance. However, the popliteal artery I think should not be used because, if for any reason ligation is necessary, gangrene of the foot may result. I think the femoral artery should be used in Hunter's canal. This offers a good location for sympathectomy and if any disturbances occur so that ligation is necessary, the collateral circulation from the large deep femoral artery will take care of the circulation.

Dr. Henry W. Meyerding, Rochester, Minn.: I think this report is of value and that more experimental data should be available on the effects of such operations in cases of fracture, especially in cases of nonunion. I have made a study of amputated members obtained in cases in which a long history of infection has been present with nonunion. In my experience ununited fractures with pseudarthrosis are cured by excision and massive bone graft. This gives a high percentage of gratifying results. When blood vessels are injected in specimens derived from cases of old, ununited fracture, with infection, a peculiar condition is found which would not be benefited very markedly by periarterial sympathectomy; that is, the vessels are occluded, and there is heavy, dense scar tissue, through which only a few large vessels penetrate to reach the region. That, I think, is one of the reasons for nonunion. It is the cause of extensive scars breaking down following operations which one performs in correcting nonunion. I am glad that the last speaker brought out the question especially of limitation of application of periarterial sympathectomy because experimentally it has been shown that the vasodilatation following periarterial sympathectomy is not as complete and permanent as is that following sympathetic ganglionectomy and ramisection.

Dr. Ralph Colp, New York: I purposely did not touch on the subject of the treatment of fractures of both bones of the leg because it has recently been adequately covered by Kennedy. In those cases in which the fractures are oblique they are treated with a pin, in traction and suspension, followed by posterior and lateral splint. There is no doubt that this is an age of rush. Most fractures will heal, as Dr. Ryerson stated, if one gives them time enough. The unfortunate thing, however, is that when one deals with industrial problems in hospitals covering large metropolitan areas the question of time is highly important and if one can get these men back to work two or three weeks sooner by some method other than that practiced heretofore, I think that that method is legitimate, because I feel that any time that can be saved to the worker is a great aid, especially in depressions such as the present. We have not done our sympathectomies in Hunter's canal because we agree with Leriche that the best results are obtained in Scarpa's triangle, where the vessel is most accessible. The dangers of injuring the vessel in Scarpa's triangle are really not as great as one might be led to believe. I have had little experience with the old osteomyelitis cases with nonunion, so I am not competent to state any facts concerning them.

WILL THE PHYSICIAN PRESCRIBE THE DIET? *

JOHN ALBERT MARSHALL, D.D.S., Ph.D.
SAN FRANCISCO

A few months ago Sir Walter Fletcher[1] focused attention again toward the important recent developments that have been made in the science of nutrition. But another fact was emphasized also, which is in the nature of a criticism. In Great Britain "the medical student receives at no point in his course of study any well based and organized instruction either in the field of nutrition or in that of mental functions."

One may conscientiously ask whether this observation does not apply with equal force to the medical curriculum in the colleges in the United States. And if it does apply, is it to be wondered at that the public is being preyed on and even prayed for by the food faddists? It is true that a few outstanding schools in this country have recognized the importance of this subject and have made adequate provision for it in their curriculums. This applies to both medical and dental schools. But, in the main, the instruction that is offered the students is hardly adequate for the important place which nutrition occupies in the practice of both medicine and dentistry.

The reason for this is quite apparent. In the first place, the work of Mendel, Sherman, Steenbock, McCollum and his co-workers, and hosts of others in the field, has been so spectacular and so rapid that the professions as a whole have hardly yet been able to digest the new facts which these experimenters have brought forth, nor have the pediatricians found it practical to institute a regimen whereby full advantage could be taken of the experimental evidence presented.

In the dental field the situation is even worse, for only in a few instances have there been anything but feeble attempts made to correlate experimental evidence with clinical observation. From a study of the curriculums, as well as from conversations with many of the men interested, one may assume that the instruction offered dental students in the subject of nutrition is in most respects comparable to that offered medical students. These remarks apply merely, however, to those aspects of nutrition dealing directly with a choice of foodstuffs rather than with a discussion of their absorption by the body or their utilization and excretion.

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* From the University of California.

[1] Fletcher, Walter: University Ideals and the Future of Medicine, J.A.M.A. 95:1389 (Nov. 8) 1930.

This is a fault which a further extension of courses in biochemistry may correct.

If one reviews the facts that have been brought out in the last few years, they can be summarized in a few sentences. First, hypoplastic teeth have been observed in animals placed on certain deficient diets. Rats, dogs, monkeys and guinea-pigs have been used in this work. The degree of dietary deficiency and the resultant dental hypoplasia are disproportionate; that is to say, the amount of injury which the tooth suffers is out of all proportion to the relatively small changes occurring in the diet. Results in this field of research have been reported by Howe,[2] McCollum and his co-workers,[3] the Mellanbys,[4] Höjer [5] and Marshall.[6]

The diets that cause various degrees of hypoplasia are those in which any one of several factors may be altered. Of these, among the most important seem to be the vitamins and the relation of the vitamins to various mineral constituents in the diet, notably calcium and phosphorus.

Many members of the dental profession have been interested in these experiments and have attempted to make some application of them to their practice. That they have not been successful is no cause for chagrin. If malnutrition were the sole etiologic factor in certain types of dental pathology, then one would expect that more spectacular results would be secured when corrective dietary measures are applied to the typical clinical cases. However, in spite of the complexity of the etiology, advantage certainly must be taken of any corrective measures, such as an altered diet. In this connection, the work of Mellanby, in England, and of Boyd and Drain, in this country, is of outstanding importance, for both have shown that changes in tooth structure in teeth which have already erupted can be produced when diets are sufficiently corrected.

Although the metabolism of calcium salts has not yet been worked out to the same degree of exactitude that has been possible in studying carbohydrates, fats or proteins, it has been shown conclusively that diet is only one factor in the process of utilization of calcium by the body.

With recognition of the need for help in this field, attempts have been made to correlate more closely the medical and dental aspects. That such a correlation is absolutely essential for the well being of the patient needs no argument, but that the members of the dental profession have not received whole-hearted cooperation from their medical friends is basis for profound regret. Patients, of course, may object to the many tests that are necessary before the physician is in a position to recommend dietary changes. The dentist then is faced with this responsibility: Is he in a position to recommend to his patient certain changes in the diet and explain the necessity for these changes, or is he in a position to prescribe a dietary regimen?

It is difficult, in some respects, to indicate a dividing line between the practice of medicine and of dentistry. This applies particularly to systemic conditions which predispose the individual to dental caries and other lesions of the tooth, paradentium and oral mucosa.

If it were possible to state that the etiology of dental caries had to do almost exclusively with oral bacteriology, then the field of research and of clinical application would be much simpler. Such, however, is not the case. It is probable that there are five factors concerned in certain types of dental pathology, such as dental caries and pyorrhea. These may be summarized under the following heads: anatomic, bacteriologic, chemical, dietary and endocrine. Of these five, it is not yet possible to state which are, or is, the most important. This much, however, may be said, that the dietary deficiencies are largely responsible for gross and microscopic variations in the anatomy of the teeth. Dysfunction of one tooth may be responsible for extensive changes in development of the alveolar process, changes that result in malposition of the secondary teeth. But it is possible also that the dietary factors are more important than is now admitted.

It would seem that a useful method of applying the present knowledge of dietary research would be for the dentist to secure more cordial cooperation with the patient and the physician. Unfortunately, however, there are too many instances wherein this cooperation either is not sought by the dentist or is refused by either the patient or the physician. The latter situation deserves a free and open discussion in the hope that a solution of the problem may be reached. Until this point is attained, the dentist is thrown, so to speak, on his own resources and perforce must designate, at least in a general way, those changes in the diet which a study of the case seems to indicate. Recommendations on choice of food are frequently necessary and may be made by the dentist without assuming any responsibility. Any further instructions should be left to the medically trained man.

Dietary prescription is a different matter. It is based on a careful study by the physician of many data, gathered both by laboratory and by clinical methods. The interpretation of these data and their application is the duty of the physician rather than of the dentist. But the clinical application of these facts becomes the joint duty of dentist and physician.

Parnassus Avenue and Arguello Boulevard.

Humanism.—We have recently had an episode of such criticisms of science that was rather interesting while it lasted. I refer to the rise and fall of the Humanist cult led by Irving Babbitt. . . . Humanism is the name of an undertaking begun about the year 1300 in which the goal was the discovery and promulgation of the good life on this lowly planet by the use of human faculties. With such announced intentions one might assume, it seems to me, that scientific work should have been promoted. Galileo and Kepler and Harvey should be the pride of the order, since ability to reason is certainly the distinctively human trait. But no; not even such master deriders of folly as Boccaccio and Rabelais are admitted to fellowship. The true humanist, as nearly as I can gather from the unintelligible though voluminous definitions of the modern exponent, is not he who bestows new knowledge upon his fellow men, but rather he who believes that progress ended with the decline of the classic Greek tradition. The announced tenets of humanism are a sense of decorum and a "will to refrain"; and each humanist naturally writes a book to explain what these precepts mean. The resulting volumes achieve harmony on only one point, and this makes the contents far from dull: there is no need for restraint when attacking error.—East, E. M.: Biology in Human Affairs, New York, McGraw-Hill Book Company, Inc., 1931.

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Clinical Notes, Suggestions, and New Instruments

PREPARATION OF BEEF JUICE IN PREVENTION OF BEEF TAPEWORM INFESTATION IN CHILDREN: REPORT OF A CASE *

I. M. Levin, M.D., and Isadore Pilot, M.D., Chicago

This instance of beef tapeworm (*Taenia saginata*) infestation in a boy, aged 2 years, is reported to emphasize the importance of the proper preparation of "beef juice," commonly prescribed by pediatricians in the diet of infants and young children.

The literature discloses numerous reports of *Taenia saginata* infestation in children. Ostheimer and Spangler [1] reviewed the literature and reported a case in a boy, aged 3 years. Of fifteen reported instances of *Taenia saginata* infestation in children under the age of 4 years, they found that there was a history of ingestion of raw or scraped beef in ten. In a recent communication we [2] stressed the incidence of fish tapeworm infestation in children who had tasted raw fish.

In the treatment of chronic intestinal indigestion (celiac disease) and secondary anemia the use of raw scraped beef and raw and cooked beef juice has long occupied a prominent place. Beef juice affords an excellent organic iron supply in the diet of normal infants.

A common recipe for the preparation of beef juice is: "Take round steak; broil slightly, cut into small pieces, and then press out the juice with a meat press or potato ricer. Feed fresh or warm before giving but do not heat sufficient to coagulate albumin." This incomplete boiling or broiling of meat and the feeding in the raw state are open to the objection that they permit the possibility of ingestion of viable cysticerci. The newer methods of treatment in celiac disease, namely, protein milk and ripe bananas, should eliminate the use of raw meat.

Another common recipe for preparing beef juice is: "Take round steak or neck meat; cut into small pieces, place in a mason jar, cover tightly, place in a pot of water, boil two hours, and then collect juice." This method, although insuring the destruction of cysticerci, is open to the objection that, in the process of heating, the resulting coagulation fixes the blood in the meat, and the beef juice contains extractives chiefly and little organic iron.

In 1901, Miller [3] reported a case of *Taenia saginata* in a child, aged 24 months, from the use of raw scraped beef for the relief of a chronic intestinal disturbance. He emphasized that "if the beef is finely minced and pressed with a beef press (not with a lemon squeezer), and then strained through fine muslin, such as a linen handkerchief (not through cheesecloth, which may permit the cysticerci to escape through its meshes) the possibility of infection is practically eliminated." Muslin or handkerchiefs are effective filters because of the relatively large size of the cysticercus, which measures from 3 to 9 mm. in length and 2 to 5 mm. in width.

In the case which we are reporting, the mother stated that she employed the method of placing small pieces of meat in a tightly covered jar, but boiled the water for only thirty to forty-five minutes, indicating that in this period of time the cysticerci may still be viable.

REPORT OF CASE

A. B., a normally born male infant, was regularly under our care throughout infancy; he weighed 19½ pounds (8.8 Kg.) at 9 months of age. At this time, beef juice was added to his diet. Except for a few minor infections of the upper respiratory tract, he did well until the age of 2 years. From this time on, an anorexia developed, and the child became pale and fretful and had several short periods of diarrhea. At 2 years and 3 months, his mother noted tapeworm segments in the stool (Aug. 6, 1928).

The child was placed on a liquid diet for three days, given a mixture of spirit of chloroform and magnesium sulphate in water [4] and several doses of pelletierine tannate. He passed a few feet of worm and a week later was admitted to the hospital. The urine was normal. The blood examination revealed: hemoglobin, 65 per cent; erythrocytes, 4,250,000; leukocytes, 7,200; neutrophils, 48 per cent; eosinophils, 4 per cent; basophils, 2 per cent; small lymphocytes, 40 per cent, and large lymphocytes, 5 per cent. The previous treatment was repeated, but 20 grains (1.3 Gm.) of oleoresin of aspidium was administered in divided doses. Again, several feet of *Taenia saginata* was passed, but the head was not recovered. Five weeks later (September 19) the mother again noted tapeworm segments. The patient returned to the hospital and on repetition of the same treatment he yielded 8 feet of worm. He was well for a month, when his appetite became very poor, and he appeared quite ill. He passed segments again (November 23) and on aspidium treatment he expelled 13 feet of tapeworm. Following this, he commenced to improve and during three months had gained 5 pounds (2.3 Kg.), the total weight being 34 pounds (15.4 Kg.). At this time, segments were again discovered (Feb. 25, 1929). Repetition of the same treatment at home yielded a large amount of worm. Repeated examinations of the stools to date have revealed no segments or ova; the child now enjoys excellent health.

SUMMARY

1. Raw meat and incompletely boiled or unfiltered beef juice should be avoided in the diet of young children.
2. A safe method for the preparation of beef juice is quoted.
3. A case of *Taenia saginata* infestation with toxic symptoms in a boy, aged 2 years, is reported.

185 North Wabash Avenue.

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* From the Lutheran Deaconess Hospital and the Department of Pathology and Bacteriology of the University of Illinois College of Medicine.

[1] Ostheimer, M., and Spangler, A. A.: Ileocolitis in a Boy of Three Years Complicated by the Presence of a Tapeworm, Pennsylvania M. J. **11**: 952, 1907.

[2] Pilot, Isadore; and Levin, I. M.: Native Infestation with Diphyllobothrium Latum (Fish Tapeworm): Report of Five Cases in Children, Am. J. M. Sc. **181**: 710 (May) 1931.

[3] Miller, D. J. M.: A Case of Taenia Saginata in a Child of Twenty-Four Months from the Use of Raw Scraped Beef for the Relief of a Chronic Intestinal Disturbance, Pediatrics **12**: 90 (Aug.) 1901.

[4] Osborne, O. T., and Fishbein, Morris: Handbook of Therapy, ed. 7, Chicago, American Medical Association, 1923, p. 295.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following article.
H. A. Carter, Secretary.

UNDERWATER GYMNASTICS

C. L. LOWMAN, M.D.
LOS ANGELES

The commonest misconception regarding this physical therapy modality seems to be that it is the treatment of paralysis by "swimming." I have even heard some orthopedic surgeons say "your swimming pool," or "How about your swimming treatment?" The objection to this is twofold. In the first place, muscle reeducation under water is not swimming. Certain movements of the free floating type produce progression and often some of the same movements used in swimming are employed, but the purpose is not to teach swimming.

The chief reason for objecting, however, is the danger of swimming instructors getting the idea that they are competent to treat paralytic and other types of cases in the water. The result is that the untrained and unscrupulous take such patients into the water when it is often too cold, and give them swimming strokes which usually strengthen muscles already strong, such as the pectorals, and increase their tendency to contracture or their overaction against weakened opponents, such as the deltoids. This increase of pleasurable activity of a recreational character may be good, but it is at the expense of increasing deformity.

Also the impression that pool work is chiefly for patients with paralysis should be corrected. My early demonstration of its value in the treatment of both acute and chronic poliomyelitis probably led to the emphasis on this aspect of its use. However, a great variety of conditions are amenable to its use. One of its chief advantages is the removal of gravity load from the joints, due to buoyancy and possibility of movement of the whole body, or any of its parts in any direction. The buoyancy factor is effective for both assistive and resistive movements, and movement of parts in the water that cannot be moved out of it because of pain and spasm. Fear, apprehension and inhibitory reactions against movement either do not develop or are greatly lessened. This decreases the time of treatment and avoids delays, which are often disastrous in joint lesions of traumatic or postoperative type. Nervous and mental tension is reduced because of the relaxing effect of the warm water and the decrease of tactile sensation through the skin. Morale is increased and a better physiologic state obtained from relief of pain, fear and anxiety, and the production of a pleasurable state instead.

There is an erroneous idea in some minds that this modality can be administered by employees having no special training or that a nurse or any one who can swim might be a suitable technician. It happens that the reverse is just the case. I have found that some of the best trained technicians, with even a master's degree in physical education, have required laborious attention and much teaching before mastering a proper technic.

A simple knowledge of kinetics is not sufficient by any means to qualify a technician. The teacher should have an extensive knowledge of abnormal kinesiology and the pathologic aspects of her cases; a good personality; a thorough acquaintance with all the pedagogic tricks needed in teaching and a knowledge of the limitations of this modality—its indications, contraindications and technic.

I find that the commonest error, made by even well trained technicians, is the tendency to overwork the patient. Nothing is so deceptive as work in the water. It is very fatiguing, especially to the weak and afflicted. The gravity load being removed, the parts move more easily through a greater arc and this freedom is misleading and makes actual grading of the amount of movement to be used quite difficult. Having had a personal experience, following painful injury of my legs, I have had this point brought forcibly to my attention. Periods as short as five to ten minutes are all that patients with severe involvement can stand.

I[1] have already called attention to the limitation of the character of work done in pools as the result of physical factors.

The chief difference between the former use of small tanks, into which the patients were suspended by shoulder belt and chain, and the present use of shallower pools with the technician in the water, is that in the former the extremities alone could be moved without aid or control of the technician. Now the technician is at hand to guide and assist, and trunk motions, which are of vital importance in many cases, can be accomplished.

Many laymen believe that the influence on paralytic and other ailments is due to some inherent potency or active principle in the water. This idea probably has gained ground because of the use of natural hot springs in some places for work of this sort, and it is common sales talk in advertising sanatoriums and resorts at which hot springs exist to claim that the efficacy of treatment by or in these waters is due to some active factor in them. The value of underwater gymnastics, however, is one of physics and not of chemistry.

The best proportioned pools are from 9 to 15 feet wide, 18 to 30 feet long, 2 feet 6 inches deep at the shallow end, and 4 feet 6 inches deep at the deep end. In a pool from 20 to 30 feet long, the floor of the shallow end for 6 or 8 feet should be very nearly level, with just enough slant for drainage, the last four feet of the deep end being the same, with opposite slant, the discharge outlet at the deep end being at the junction of the two inclines. This allows an area for walking in uniform depth for children at one end and for adults at the other. Walking in deep water is of great value for the beginning steps after various leg and hip operations, as the amount of weight borne can be accurately graduated. This allows the patient, at first with crutches and then without them, to go through the motions of stepping and walking with but a slight amount of weight actually being borne on the operated parts. In this way the usual stress or danger to the operated area is avoided and pain and inhibitory spasm are eliminated. Increased nutrition and muscle tone also improve callus formation. Data on post-traumatic therapy of the pool comprise the subject matter of a paper now under way.

Another point is the confusion of the recreational and reeducational features. Technically, it is not sound clinical or physiologic treatment to mix the two as is done in some pools. The play factor has no place in the schedule during the stage of concentrated muscle training. The latter is regulatory and disciplinary in character and is actually mental and muscular effort, or work, and not play. It may be granted that in children too young to have much power of concentration, and in those a little older whose attention span is limited, the stimulus to action must be covered up and interest aroused through stories or games. However, this plays on the dramatic instinct of the child, who likes to act out his emotions. The constant effort of the technician must be directed toward getting definite, deliberate motor response to command by purpose and direction—not by indirection—even though that is better than none at all. In spastics, the latter method may have to be used at first, to avoid too great an effort and concentration and prevent increasing tension and rigidity.

For patients not requiring strict dosage such as patients being treated because of faulty posture, a recreational swim will not do any harm, nor will it for patients with paralysis at the end of their course of treatment, when the final stage of recovery has been reached; i. e., the amount of comeback proved. To me it seems highly inconsistent, during the stage of actual technical muscle training, when an effort at stimulating the muscles to maximal exertion is made, to attempt prescribed and carefully graded dosage of exercise of paralyzed or impaired muscles and then at any time during the day to allow free recreational swimming, or play, without the protection of braces to the weakened muscles. If the latter activity, unsupervised, is to be allowed on a play basis of free response to emotional impulses and desires, of what use is a carefully laid out plan of graded, supervised muscle training If work in the water, under a cautious technician who allows only slow, deliberate movements is fatiguing, what must happen to the affected muscles in the unsupervised activity? The very condition of the handicapped paralytic patient requires him to make greater effort to accomplish his movements. Hence, to compensate his sense of inferiority he will be too persistent in his attempts and become fatigued or else overdevelop existing normal or overactive muscle groups. This tends to favor deformity.

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[1] Lowman, C. L.: Physical Equipment of Therapeutic Pools, J. A. M. A. 94:845 (March 22) 1930.

If swimming is to be allowed, the patient with poliomyelitis, and even the patient with bad posture should be most carefully supervised and only those strokes that are corrective be allowed. This, however, is far from being free pool play. In any case it should not occur on the same day as actual muscle training treatments.

I should like to sound a note of warning to technicians regarding the handling of frail individuals even in reasonably warm pools. The danger of chilling the skin must not be overlooked because of the bad effect on the general well being of the patient, especially if he has a kidney lesion. I have noted that quite a high percentage of patients with early, acute poliomyelitis show a nephritis of varying grades—sometimes only slight, and sometimes one that takes several weeks to clear up. Even in the equable climate of southern California, after these patients leave the pool they chill rapidly because of the slight amount of fatigue produced by their efforts in the water, and it sometimes takes quite a while to restore a normal skin temperature. Any patient who has suffered a lengthy illness from a debilitating disease or infection, is susceptible to this reaction. It is advisable to cover the patient with a large, hot bath towel or blanket immediately after he leaves the pool. As patients are raised from the water with the electric hoist, the attendant drops a warm towel on them at once, so they are not exposed to the air while being transferred to the dressing room. It is also well to have a hot air blower in the dressing room, which can be directed against the body, and not only assist in drying but prevent chilling. Occasionally persons with poliomyelitis in severe form, or with paralysis from fractured spines, who are in a depleted state, and become subnormal readily, are obliged to have their treatments discontinued or reduced in duration or number. Unless great care is taken in estimating the point of fatigue, many patients are allowed to overdo. Even if they are chilled but slightly they may take cold and suffer from congested sinuses or disorders of the respiratory tract, aside from the effect on the kidneys already mentioned.

The question of hygiene of the pool is one that also needs special attention, even though the water is chlorinated. The patient should be properly prepared by local bathing, or a shower, when possible, before entering the pool.

One of the reasons why technicians who remain in the water for long periods should wear rubber suits is that the bacterial load of the pool is reduced and more easily controlled. In pools used by women bathers this factor is more serious than in men's pools. One technician in the pool for eight hours is equal to sixteen patients at thirty minutes each.

The hypochlorite solutions are better than the use of free chlorine gas because there is less danger to the children from possible escape of free gas, as has occurred in some pools. The hypochlorite solution, according to government tests, appears to be more of a bacteriacide than the free chlorine, and less irritating to the eyes.

Whenever possible it is advisable for the patient to take a rest period immediately after the pool treatment, because of its fatiguing effect, and particularly as it is easier to take a nap at this time. This is valuable in nervous and highly strung patients—spastic patients, choreic patients and hypertense children in general.

The use of sun treatment in connection with the pool, or at other times, is one that should be graded very carefully under a physician's prescription. The fact that the sun's rays are a powerful stimulant makes it rather poor physical therapy to try to whip up a body that has just been placed in a fatigued state by another modality. Many times, in the interest of stimulating the child's activities, there is a tendency to do too much rather than too little and, as already stated, the exercise of common sense and caution is of great importance. Highly strung, erratic, children of the lithe type under any treatment need to develop poise and control, and should have a slowed down program rather than a speeded up one. Those with a great deal of mental drive frequently spend too much energy in everything they do, and care must be taken in physical therapeutic treatments not to aid this tendency.

The points brought out may be thus summarized:

1. Avoid too protracted periods in the water in order not to develop fatigue.
2. Avoid chilling and too rapid cooling of the skin.
3. Use great care in protecting affected and painful joints, or other parts, while drying and changing clothes.
4. Avoid careless handling from bed to pool.
5. Do not fail to give splint support to operated or paralytic joints.

These points must be especially watched in acute poliomyelitis cases.

Patients with chronic poliomyelitis should, in addition to these suggestions, have greater consideration of trunk exercises to develop better body balance. One should avoid careless supervision of activities.

In fracture cases the technician's time should not be wasted on small arm fractures and others that can be handled just as well without this modality.

One should not expect the pool to restore arthritic joints that are practically ankylosed.

In scoliosis one should not expect to do more than raise the general tone, possibly lost from long cast or recumbency treatment.

Early treatments after fusion should not be given without a protective waterproof back splint until at least three months after operation and then only on the surgeon's orders, unless there is roentgen evidence of certain and firm ankylosis.

Spastic patients should not be taken into pools that are noisy and where other active work is going on. The water should be hot. Cold or cool pools are contraindicated.

Only the auxiliary playthings that are used as an essential part of the treatment should be employed—those for grasping, handling, pushing, blowing, and the like.

2417 South Hope Street.

Laboratories.—If this sounds too idealistic, listen to the famous message of the great Pasteur, who said: "Take interest, I implore you, in those sacred dwellings which one designates by the expressive term laboratories. Demand that they be multiplied, that they be adorned; these are the temples of well being and of happiness. There it is that humanity grows greater, stronger, better," for, as he says elsewhere, "Science is the soul of prosperity of nations and the living source of all progress."—Graves, W. P.: The Unification of Science and Its Relation to the Control of Life, *Am. J. Obst. & Gynec.* **22**:349 (Sept.) 1931.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

LIQUID PETROLATUM (See New and Nonofficial Remedies, *1931*, p. *235*).

The following dosage form has been accepted:

Squibb Liquid Petrolatum with Agar and Phenolphthalein: Liquid petrolatum-Squibb, heavy (California), 50 cc.; agar, 1.5 Gm.; phenolphthalein, 0.095 Gm. (1½ grains per fluidounce); sodium benzoate, 0.1 Gm.; acacia, glycerin and water sufficient to make 100 cc.

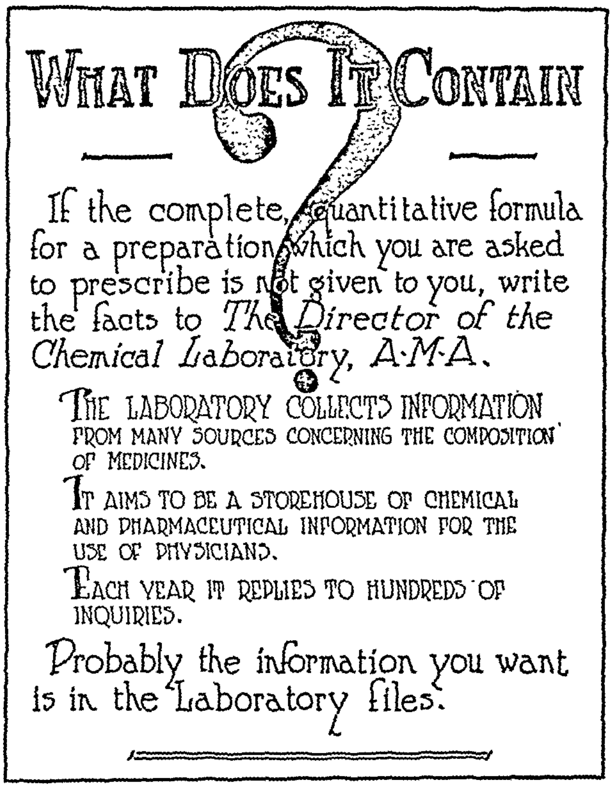
SOLUTION LIVER EXTRACT PARENTERAL-LEDERLE. — A sterile aqueous solution of a concentrated water soluble, nitrogenous, nonprotein fraction obtained from fresh mammalian liver. It is marketed in ampules, each containing the material obtained from 100 Gm. of liver.

Actions and Uses.—Solution liver extract parenteral-Lederle is proposed for intramuscular or intravenous injection in the treatment of pernicious anemia.

Dosage.—Determined by the condition of the patient; satisfactory results have been obtained by the injection of a dose of one ampule daily for three or four days. The proposed maintenance dose is one ampule per week; but it must be determined for the individual patient.

Manufactured by the Lederle Laboratories, Inc., Pearl River, N. Y. No U. S. patent or trademark.

To prepare liver extract parenteral-Lederle, the finely minced livers of edible animals are added to water. The mixture is adjusted to a p_H of from 5.4 to 5.8, heated to 75 C. to coagulate the protein, held to this temperature for thirty minutes, and filtered. The filtrate is concentrated in vacuo to small bulk, and enough 95 per cent alcohol is added so that the final mixture contains 65 per cent of alcohol by volume. The precipitate is discarded and the alcoholic filtrate concentrated in vacuo, sufficient absolute alcohol being added to precipitate the active material, which is subsequently dried in vacuo and granulated. It is soluble in water; insoluble in alcohol, acetone or ether. One Gm. of the finished product represents approximately 45 Gm. of fresh, whole liver. The resulting powder is dissolved in distilled water, heated to 70 C., passed through a Berkefeld filter, and filled into ampules.



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REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

LACTO-KELPOL NOT ACCEPTABLE FOR N. N. R.

Lacto-Kelpol is the proprietary name under which the Kelp-Ol Laboratories, Inc., Los Angeles, submitted (under two forms, distinguished by a red and a brown label) a preparation stated to consist of lactic acid (brown label) 0.5 per cent, (blue label) 1.0 per cent; agar-agar 10.0 per cent; mineral oil 33.33 per cent; sodium benzoate 0.1 per cent; water and flavoring. The chief claim for Lacto-Kelpol was that it is prepared by a special process whereby the lactic acid is "locked up with the agar and oil so that it is unaffected by the gastric juice," the entire content of Lacto-Kelpol passing through the stomach into the intestine and acidulating the intestinal contents, retarding the growth of putrefactive organisms and stimulating the growth of Bacillus acidophilus. Lacto-Kelpol was recommended for a great variety of conditions including chronic constipation, influenza, hypertension, neuroses, asthma, eczema, acne, gastric and duodenal ulcer, enteritis, mucous colitis, intestinal toxemia, arthritis, hypothyroid conditions and dysentery.

In support of its claims the manufacturers submitted a reprint of an article by John F. Kessel (*Proc. Soc. Exper. Biol. & Med.* **27**:113, 118, 1929). Kessel calls attention to the contradictory statements in the literature concerning the effects following the administration of lactic acid and says that he chose Lacto-Kelpol because of the claims of the manufacturer just mentioned. Kessel found that the administration of Lacto-Kelpol 1 per cent increased the p_H of the feces slightly in monkeys and somewhat more in man. He makes no mention of any control experiments in which lactic acid alone was administered, though he did administer it to rats without satisfactory effects, nor does he state what amounts of Lacto-Kelpol 1 per cent were used. His examination of the feces showed uniformly considerable increase in B. acidophilus after Lacto-Kelpol. The dose of Lacto-Kelpol stated on the label is a tablespoonful or more.

Lacto-Kelpol has a decidedly acid taste, and when it is shaken with a dilute solution of sodium bicarbonate in water active effervescence occurs. It is well known that emulsions of liquid petrolatum with agar are broken up in the intestine; hence there is no reason to believe that the lactic acid in Lacto-Kelpol will behave essentially differently from a dilute solution of lactic acid in spite of the findings of Kessel, which, for reasons previously stated, cannot be accepted as having any essential bearing on the problem.

The Council's referee reported that he had obtained evidence which seems to show conclusively that the lactic acid in Lacto-Kelpol is not so firmly fixed in the emulsion as to escape solution in the gastric and intestinal fluids. In other words, it appears to behave almost exactly like a solution of lactic acid.

Without consideration at the present time of the question of the name of Lacto-Kelpol, the Council declared the product unacceptable for New and Nonofficial Remedies because there is no satisfactory supporting evidence for the claim that the lactic acid contained in Lacto-Kelpol emulsion behaves essentially differently from a dilute solution of lactic acid.

When the preceding report was submitted to the Kelpol Laboratories, postponement was requested in order that further evidence might be submitted. The firm submitted reports of animal experiments and also reports of four clinical trials. This evidence did not permit acceptance by the Council of the statement that the behavior of Lacto-Kelpol in the human intestine is essentially different from that of a dilute solution of lactic acid, and accordingly the Council confirmed its decision declaring Lacto-Kelpol unacceptable for New and Nonofficial Remedies.

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SATURDAY, OCTOBER 10, 1931

"LECITHIN" AND THE LIVER

The investigations that led to the discovery of insulin were motivated by the well justified assumption that the defect of the pancreas leading to the manifestations of diabetes involves only part of the organ, the islands of Langerhans. Glycosuria results promptly when the entire pancreas is extirpated, and death ensues presently in experimental animals unless some specific corrective measure is employed. The question was early raised as to whether the fatal outcome is due to factors other than the mere loss of the hormone insulin. One thinks at once of the "external" secretion of the pancreas that empties through the pancreatic duct into the intestine to facilitate various phases of digestion. A number of experiments seem to have excluded the loss of the digestive secretion as a contributory cause of the damaging effects of pancreatectomy. It was observed, for example, that the complete drainage of pancreatic juice to the exterior is not necessarily fatal. In such cases the "internal" secretion, containing the essential hormone regulating carbohydrate metabolism, is not lost to the organism. When insulin was regularly administered to them in suitable amounts, animals deprived of the pancreas have been kept alive and in good health for considerable periods. Presently untoward symptoms have arisen in many instances.

Toronto physiologists[1] have described the outcome when depancreatized dogs were maintained on diets of lean raw meat and sugar in addition to the insulin medication. After a period of good health for several months, the animals began to appear depressed and apathetic and took little food. Jaundice was sometimes quite marked and bile pigments were found in the urine, the volume of which became less and less. Vomiting was frequently present. Extreme weakness and diarrhea preceded death, the feces being dark and occasionally containing small amounts of blood. Postmortem examination revealed that the liver was the chief and in most cases the only organ obviously affected, marked fatty infiltration (up to 35.5 per cent) being observed. Even the earlier investigators had noticed that such untoward results can be averted by the inclusion of raw pancreas in the diet. As the digestive enzymes appeared not to be responsible for this improvement in health, the identity of the factor in raw pancreas has become a problem of interest. Hershey and Soskin[2] of Toronto have lately reported that depancreatized dogs receiving insulin and a cane sugar and lean beef muscle diet will survive for a long period, presumably "indefinitely," without pancreatic enzymes being available, provided they receive frequent doses of egg yolk "lecithin." When depancreatized dogs do develop the characteristic syndrome attributed largely to failure of liver function, the addition of "lecithin" to their diet regularly and promptly alleviates the signs and symptoms of this condition. These beneficial effects of "lecithin" suggest that the liver function is improved and this suggestion is supported by the necropsy. Evidence is presented which makes it unlikely that vitamins are concerned in the development or alleviation of this condition.

The liver undoubtedly takes an important part in fat metabolism. Phospholipoids, such as "lecithin," are believed to be concerned in the utilization of fats. Lack of adequate phospholipoids in the diet may result, particularly under the peculiar conditions of loss of the pancreas, in "liver failure" such as inappropriately fed depancreatized animals show. It is noteworthy that when such conditions arise there seems to be an unusual susceptibility to overdosage with insulin. Apparently the disordered liver can no longer synthesize glycogen properly, so that there is an inadequate response to the needs created by insulin therapy. These studies have opened an important field for further investigation.

IS MANGANESE AN ESSENTIAL ELEMENT?

Until comparatively recent times the interest of students of physiology in the inorganic constituents of the body or the so-called mineral nutrients was limited to a few elements. The list comprised sulphur and phosphorus (which exist partly in organic combinations), chlorine, sodium, potassium, calcium, magnesium and iron. This by no means exhausts the variety of elements that can be detected in the body or in the animal and plant products that serve as food; but the others are present in quantities that were described as "traces" and were assumed to represent chance contaminants. Plants, on which ultimately all animal forms depend for sustenance, grow in a medium—the soil—that contains a larger number of elements. It might be expected, therefore, that traces of many of them would inevitably find their way adventitiously into the animal organism, without representing any real essential of life. The discovery, in 1895, of the significant part played by mere traces—that is, a few milligrams—

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[1] Allan, Bowie, Macleod and Robinson: British J. Exper. Path. **5**: 75 (April) 1924.

[2] Hershey, J. M., and Soskin, S.: Substitution of "Lecithin" for Raw Pancreas in the Diet of the Depancreatized Dog, Am. J. Physiol. **98**: 74 (Aug.) 1931.

of iodine in the human organism represented the beginning of a new sort of interest in the elements occurring in small amounts in living tissues. The determination of what is essential and what adventitious is not easy. Obviously an inorganic element or compound that is toxic in small amounts is not likely to be indispensable or even advantageous to the body. There are substances, however, that are toxic in larger doses yet innocuous in small amounts. For example, concentrated hydrochloric acid is a menace to tissue; in weak concentrations it functions admirably as a component of the gastric juice. The combinations in which elements occur also affect their physiologic significance; witness the difference in the effects of phosphates and elementary phosphorus, or of nitrogen in nitrates and amino-acids, respectively.

Considerable has been written of late about the possible rôle of copper as a "promoter" of hemoglobin formation in certain types of anemia. It appears to act as a supplement to iron in this process. A similar function has been attributed to other elements, notably manganese, though the claims are still stoutly denied by the majority of the investigators. It cannot be denied, however, that manganese is constantly present in animal tissues,[1] a fact that has justified the assumption that it is likely to promote some useful purpose. Obviously, some answer to the question might be secured if experimental animals could be observed on diets devoid of manganese. Such rations are not easily prepared, but several investigators seem to have been successful. Kemmer, Elvehjem and Hart[2] have found that milk is extremely low in manganese, containing approximately 0.02 mg. per liter, and yet furnishes most of the necessary food factors with the exception of iron and copper. It is difficult to assemble a synthetic diet that is lower in manganese than a corresponding amount of milk, even when only the most highly purified constituents are used. According to their observations the addition of traces of manganese to a diet of whole cow's milk supplemented with iron and copper has a favorable effect on the growth of mice. Without the manganese, they fail to ovulate properly. The same seems to be true in the case of female rats,[3] in that manganese greatly improves the ovulation rhythm. At any rate the Wisconsin experiments indicate that manganese may be closely connected with the reproductive organs. Investigators[4] at Johns Hopkins University also insist that manganese does not take part in blood regeneration. They believe that the element aids in rendering a diet complete for the support of reproduction and suckling of young. It may be that the mammary tissue is not adequately developed in the females. It is stated that the germinal epithelium in the male rat on a manganese-free diet degenerates.

As a working hypothesis, based on similarity of clinical evidence of human subjects with the observed effects of manganese deficiency on rats of both sexes, the Johns Hopkins investigators suggest the provisional hypothesis that manganese is in some manner concerned with the production of a hormone by the anterior lobe of the hypophysis, which is essential for the functioning of the testes and for the proper development and functioning of the mammary tissue. Whatever the ultimate conclusions may be in the light of much further research, it already seems imperative to consider seriously the potentialities of manganese (in minute amounts) as an element of some significance in the body.

DONHIDE—ANOTHER NOSTRUM FOR EPILEPSY

Certain diseases that afflict mankind arouse greater distress and thereby greater pity than do others. Epilepsy, known to the ancients as "falling sickness," is of this type. It is not infrequent, yet its manifestations are sufficiently unusual to attract the curiosity of the multitude. Numerous attempts made to relieve the condition have resulted in the development of certain well known drugs of a sedative character which, while controlling the attacks to some extent, nevertheless do not constitute, in any sense of the word, a "cure."

The Bureau of Investigation of the American Medical Association has a pamphlet which lists a considerable number of preparations purveyed directly to the public with outrageously false or indirectly exaggerated claims as to their merits in this disease. Practically all these preparations have in the past been found to contain bromides or phenobarbital (luminal) as their potent ingredients, other medicaments being added merely to mask the nature of the product, to confuse the user or to lend it some semblance of originality. The most recent addition to this group of unwarranted and actually cruel "patent medicines" is a preparation said to be made by the Riverside Laboratories, New York —a preparation given for some reason not clear the name "Donhide."

The advertising for this product is unusually insidious. A clipping from the New York *Evening Journal* is circulated with the caption "How much longer must this continue?" It refers to attacks of epilepsy, affecting two people in New York, who accidently fell and sustained serious injuries during an attack. A direct appeal has been made to the governors of several states, urging them to give "Donhide" a trial in their institutions and citing the alleged fact that Governor Sampson of Kentucky requested Dr. Addie M. Lyon of the state institution for the feebleminded at Frankfort to try the remedy. A telegram from Dr. Lyon received by THE JOURNAL states: "I have not authorized the Manhasset Chemical Co. to use my name in their effort to laud the use of their compound Donhide. I fear this is nostrum propaganda. Do not use my name to endorse it." Moreover, a circular letter sent to physicians mentions the same request by the governor of Kentucky and points out that the manufacturers have invited the Associated Press to witness the Kentucky experiment. Certainly this must be an unwarranted use of the name of the Associated Press in the promotion of a nostrum for epilepsy. The manufacturer is not unaware of the fact that nostrums exist, for he alleges in his letter that Donhide "is not simply another of the many nostrums."

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[1] Skinner, J. T.; Peterson, W. H., and Steenbock, Harry: J. Biol. Chem. **90**:65 (Jan.) 1931.

[2] Kemmer, A. R.; Elvehjem, C. A., and Hart, E. B.: Studies on the Relation of Manganese to the Nutrition of the Mouse, *J. Biol. Chem.* **92**:623 (Aug.) 1931.

[3] Waddell, J.; Steenbock, Harry; and Hart, E. B.: J. Nutrition **4**:53 (May) 1931.

[4] Orent, E. R., and McCollum, E. V.: Effects of Deprivation of Manganese in the Rat, J. Biol. Chem. **92**:651 (Aug.) 1931.

Because of the extensive propaganda being made for this substance the purveyor was informed that the statement of composition of Donhide—namely, sodium bromide, ammonium bromide, scutellaria, cinchona, glycerin and aqua destillata—was unquantitative and therefore of little value. He was told that there was no reason to believe that this medicament could do anything that any other mixture of bromides could not do. Scutellaria (skullcap), it was pointed out, is a substance claimed, without adequate evidence, to be a tonic, nervine and antispasmodic, particularly in chorea and convulsions. To this statement the promoter replied that it acts solely in the capacity of sales and distributing agency for "Donhide" and that the manufacturer is the Riverside Laboratories of New York City. Because of the information it had received, said the firm, it had immediately modified the composition of its product, eliminating the "scuttellarin" [sic] and reducing the bromide to approximately one-third the original amount. The company also offered to find a new name and objected to the charge that the claims made for the product were not warranted, because it had evidence that epileptic patients had been relieved through the use of the preparation. As we go to press a statement is received from the Manhasset Chemical Company, Inc., saying: "We have made a thorough investigation of your criticisms. This investigation has ascertained the truth of your criticism, due to which we have been persuaded to discontinue the sale and promotion of Donhide. Accordingly, anything relating to Donhide will have to be taken up with the Riverside Laboratories, which has absolutely no relationship, business or otherwise, with the Manhasset Chemical Co., Inc."

This entire incident is so typical of the way in which proprietary interests promote as nostrums in various diseases the use of well established medicaments that physicians will wonder why The Journal has devoted this space to a meticulous account of the process. The answer lies in the colossal impudence of the company as exemplified by its attempts to urge its product on the governors of various states and by the use of the name of the Associated Press in furthering the exploitation. Meanwhile, the Bureau of Investigation of the American Medical Association will add the name of another bromide preparation to its list of nostrums for persons with epilepsy.

Current Comment

SALIVARY ANTITOXIN

While numerous studies have been made of the antibody content of urine and milk, almost no data are at present available as to the possible specific immunologic rôle of the digestive secretions. A promising beginning has been made in such study, however, by Sugg and Neill[1] of Vanderbilt University, who currently report that the saliva of normal individuals "naturally" immune to diphtheria contains measurable quantities of diphtheria antitoxin. The antitoxin titer of the mixed saliva apparently bears a fairly constant ratio to the serum titer, the amount of antibody annually secreted by an individual being approximately 25 per cent of his total humoral immunity. This would constitute an important loss of "natural" immunity, unless it can be shown that there is a physiologic reabsorption of this swallowed antitoxin. The mechanism of this apparent salivary secretion has not yet been determined. It is, of course, possible that the saliva itself is not the main source of the salivary antitoxin but that the apparent secretion is in reality a prophylactic transudate from the tonsils or other buccal surfaces. It will be interesting if such a tonsillar function is eventually demonstrated.

NATHAN PORTER COLWELL, SECRETARY OF THE COUNCIL ON MEDICAL EDUCATION, RETIRED

By action of the Board of Trustees, at its last session in Chicago, September 18, Dr. Nathan Porter Colwell, since 1906 secretary of the Council on Medical Education of the American Medical Association, has been retired. In its action the Board authorized the conveyance to Dr. Colwell of its appreciation of his great service to medical education. Through the annual reports of the Council to the Board of Trustees, through the State Board and Educational numbers of The Journal, and through his numerous contributions to the subject of medical education, the medical profession is familiar with what has been accomplished by the Council since its inception. In that accomplishment no small part of the credit must be assigned to Dr. Colwell. As secretary of the Council he bore a large share of the responsibility for direct investigation and report on medical schools, for guiding the trend of discussions at the annual conferences, for setting forth clearly the facts so that all who were interested might base their judgments on the same statistics. No argument was more convincing, no statement more important, than this annual publication of progress made or impetus lost. The figures were all the stimulus that the weaker institutions needed to bring them upward to an acceptable status. Dr. Colwell leaves his work at a high peak, with the vast majority of medical schools and hospitals possessed of a high standing and eager to go forward to still higher ideals and accomplishments. In the Board of Trustees' acknowledgment to him the medical profession will join heartily.

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[1] Sugg, J. Y., and Neill, J. M.: J. Immunol. **20**: 463 (June) 1931.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 10:30 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 12. Communicable Diseases in the Home.
October 17. Gentle Sleep.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday and Saturday, from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

October 12. Getting Along With People.
October 14. Shall We Eat Meat?
October 17. What Troubles Your Mind?

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—Drs. Benjamin H. Hager and Robert V. Day addressed the Los Angeles County Medical Association, October 1, on "Carcinoma of the Prostate" and "Bilateral Kidney Stones," respectively. Dr. Robert W. Langley reported on a study of hypertension.——William B. Herms, professor of parasitology, University of California, Berkeley, addressed the Pasteur Society of Central California, October 7, on "Relation of Entomology to Public Health with Emphasis on the Transmission of Relapsing Fever."——The meeting of the San Francisco County Medical Society, October 13, will be addressed, among others, by Drs. Myrl Morris and Huldah E. Thelander on "Mastoiditis in Early Infancy" and "Evaluation of Present Methods of Diphtheria Prophylaxis," respectively.

Research Supported by Students.—It was recently announced that the Associated Students of the University of California have turned over to the university an additional $1,500 from last year's football profits for the continued support of research on the cause and cure of epidermomycosis, commonly known as "athlete's foot." The work is being done by Dr. Robert T. Legge, medical director of the Cowell Memorial Hospital, Berkeley, Dr. H. J. Templeton of the hospital staff, and Lee Bonar, Ph.D., assistant professor, department of botany. The research last year was also financed by the Associated Students of the University of California. It was pointed out that in reaching this decision the executive committee of the organization made it known that the policy is to use football profits not required for the support of athletics and physical education for other projects of fundamental value to the university and to the state.

DELAWARE

State Medical Meeting at Wilmington, October 13-14.—The one hundred and forty-second annual meeting of the Medical Society of Delaware will be held at Wilmington, October 13-14, with headquarters at the Hotel Du Pont and under the presidency of Dr. George C. McElfatrick. The program will consist of papers by James L. Weatherwax, Philadelphia, on "Radium and Deep X-Ray Therapy" and Drs. Ira Burns, Wilmington, on "Clinical Results of Radium Therapy in Wilmington General Hospital"; William Edward Chamberlain, Philadelphia, "X-Ray Examination of the Sacro-Iliac Joint"; William Wertenbaker, Wilmington, "A New Method of Performing the Radical Cesarean Operation" (motion picture); Joseph C. [illegible] "Modern Treatment of Cancer"; Morris [illegible] of THE JOURNAL, "The Frontiers of [illegible] M. Allen, Wilmington, "X-Ray Diagnosis of the Chest with Special Reference to Fluid"; Henry O. Reik, Atlantic City, N. J., "Shall the Profession Undertake Control of Specialization in Medicine?"; William Wayne Babcock, Philadelphia, "Diagnosis and Treatment of Carcinoma of the Large Intestine"; James M. H. Rowland, Baltimore, "Obstetrical Hemorrhage"; Arthur C. Jost, Dover, "Relations of Delaware Public Health to Indigent Syphilitic Cases"; Earl D. Bond, Philadelphia, "Postencephalitic Disorders and Their Relation to General Practice"; Joseph McFarland, Philadelphia, "Malignant Diseases of the Breast"; Irvine M. Flinn, Jr., Wilmington, "Backache," and Clyde R. Bennett, Farnhurst, "The Psychiatric Observation Clinic in Delaware." Dr. Edward Starr Judd, Rochester, Minn., President, American Medical Association, will address the session.

GEORGIA

Society News.—Dr. Benjamin T. Beasley spoke on "Chorionepithelioma and Hydatidiform Mole" before the Fulton County Medical Society, Atlanta, October 1.——The Fifth District Medical Society will be addressed, October 21, among others, by Drs. Edgar G. Ballenger on "Prevention and Treatment of Acute Gonorrheal Urethritis"; Marion C. Pruitt, "Terminal Bowel as a Focus of Infection," and Charles W. Roberts, "Estimation of Post-Traumatic Industrial Disability"——Charles C. Rife, D.V.M., addressed the Fulton County Pediatric Society, October 8, on rabies.

ILLINOIS

Society News.—"Mental Hygiene and Its Relation to the General Practitioner" was the subject discussed by Dr. Paul L. Schroeder, Chicago, before the Randolph County Medical Society, September 10.——Dr. Francis E. Senear, Chicago, addressed the Peoria City Medical Society, October 6, on "Modern Conceptions Concerning the Treatment of Syphilis."

Chicago

Sir Thomas Lewis to Give Billings Lecture.—Sir Thomas Lewis, London, will give the first Frank Billings Lecture of the Thomas Lewis Gilmer Foundation, October 31, on "Pain in Muscular Ischemia and Its Relation to Anginal Pain." This will be a regular meeting of the Institute of Medicine of Chicago.

Society News.—Dr. Sumner L. S. Koch addressed the Chicago Society of Industrial Medicine and Surgery, October 7, on "Treatment of Tendon Injuries."——Dr. Augustus C. Pohlman, St. Louis, gave an illustrated address on "Anatomic Fundamentals of the Mechanics of Audition," before the Chicago Laryngological and Otological Society, October 5.——Dr. Joseph Colt Bloodgood, Baltimore, addressed the Chicago Dental Society, October 8, on "Oral Cancer."

Dr. Whipple Delivers Bevan Lecture.—Dr. Allen O. Whipple, professor of surgery, Columbia University College of Physicians and Surgeons, New York, addressed the Chicago Surgical Society in joint session with the Institute of Medicine of Chicago, October 2, on "Anatomical and Physiological Variations in the Duodenum Considered from Embryological and Clinical Standpoints." This was the third annual Arthur Dean Bevan Lecture of the Chicago Surgical Society.

Personal.—Dr. Max Cutler, formerly director of cancer research, division of cancer, Department of Hospitals, New York, has been appointed director of the recently established tumor clinic at Michael Reese Hospital. The formal opening of the clinic took place, October 9, at which time the Louis A. Greensfelder Memorial Lectureship was given (THE JOURNAL, September 26, p. 935).——Dr. Bernard Fantus has been appointed professor of therapeutics at the University of Illinois College of Medicine.

Joseph A. Capps Prize.—The Institute of Medicine of Chicago is offering a prize of $500 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be in one of the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who have received their M.D. degrees during the year 1929 or thereafter. The manuscript must be submitted to the secretary, Institute of Medicine of Chicago, 122 South Michigan Boulevard, not later than December 31. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1932, the time to be later designated. If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the board of governors.

INDIANA

Society News.—Dr. Max A. Bahr, Indianapolis, addressed the Tippecanoe County Medical Society at La Fayette, September 10, on psychoanalysis with a report of a case of hysteria. ——Dr. Joseph H. Clevenger, Muncie, addressed the Delaware-Blackford County Medical Society, September 15, on the treatment of burns.

Dr. Gatch Appointed Acting Dean.—Dr. Willis D. Gatch, professor of surgery, has taken over the duties of acting dean of Indiana University School of Medicine for the school year 1931-1932. Dr. Charles P. Emerson, the dean, has been given leave of absence to spend about ten months in the Far East as a member of a commission which will appraise and evaluate facts on foreign missions. Dr. Henry S. Houghton, dean of the State University of Iowa College of Medicine, Iowa City, is also a member of the commission. Frederic Woodward, LL.D., vice president and dean of faculties of the University of Chicago, is vice chairman and head of the group, which sailed, September 29. Dr. Emerson and Dr. Houghton will pay particular attention to the medical missions, schools and hospitals of the Asiatic countries.

IOWA

Society News.—Dr. Andrew B. Rivers, Rochester, Minn., addressed the Waterloo County Medical Society, September 15, on "Causes of Gastro-Intestinal Hemorrhages."——Dr. Ray R. Harris, Dubuque, addressed the Jackson County Medical Society, September 17, at Lakehurst, on "Hand Injuries and Their Treatment." A symposium on peptic ulcer was also presented, the speakers being Drs. Horace M. Korns and Frank R. Peterson, Iowa City.——The Johnson County Medical Society was addressed, October 7, by Avery E. Lambert, Ph.D., and Dr. Harry P. Lee, Iowa City, on "Histogenesis of the Red Blood Cells" and "Intravenous Urography," respectively. ——Dr. Morgan J. Foster, Cedar Rapids, addressed the Linn County Medical Society, October 8, on intussusception, and Dr. Isaac A. Abt, Chicago, anterior poliomyelitis.

KANSAS

Personal.—Dr. Claude P. Fryer, formerly of Maryville, Mo., assumed his duties as field agent of the U. S. Public Health Service and health officer of Brown County with headquarters at Hiawatha, September 16. Dr. Fryer had been health officer of Nodaway County (Mo.) for the last nine years.

Society News.—The Wyandotte County Medical Society was addressed, September 15, by Drs. Ernest R. Parker on "Pyelonephritis" and Lewis G. Allen, "Position of X-Ray and Radium Therapy in Modern Medicine." A joint meeting of the society with the Jackson County Medical Society, October 6, was addressed by Dr. Edward Starr Judd, Rochester, Minn., on "Function of the County Medical Society in the General Plan of the American Medical Association."

MAINE

Hospital News.—Dr. Joelle C. Hiebert, Boston, has been appointed superintendent of the Central Maine General Hospital, Lewiston, succeeding Dr. Lewis F. Baker. A new wing of this hospital was dedicated, July 24.

Society News.—Dr. William P. Murphy, Boston, addressed the Washington County Medical Society, Calais, July 30, on diagnosis and treatment of pernicious and secondary anemias, and Dr. Clifford D. Harvey, Boston, on acute conditions in the abdomen.

MARYLAND

Faculty Changes at University of Maryland.—The following promotions in the faculty, among others, have recently been announced by the University of Maryland School of Medicine:

Dr. William H. Toulson, to professor of genito-urinary diseases.
Dr. Nathan Winslow, to professor of clinical surgery.
Dr. Page Edmunds, to professor of clinical and industrial surgery.
Dr. Walter D. Wise, to professor of clinical surgery.
Dr. Frank S. Lynn, to professor of clinical surgery.
Dr. Elliott H. Hutchins, to professor of clinical surgery.
Dr. Charles Reid Edwards, to professor of clinical surgery.
Dr. Harry M. Robinson, to professor of clinical dermatology.
Dr. James Dawson Reeder, to clinical professor of diseases of the colon and rectum.
Dr. Charles C. Habliston, to associate professor of medicine.
Dr. Ralph C. P. Truitt, to associate professor of psychiatry.
Dr. Herbert M. Foster, to associate professor of surgery.

New Department of Neurosurgery.—The organization of a department of neurosurgery was recently announced by the University of Maryland School of Medicine. Dr. Charles Bagley, Jr., will be in charge of the new division and Dr. Richard G. Coblentz will be associate in neurosurgery. Dr. Bagley was formerly associated with Dr. Harvey Cushing at the Peter Bent Brigham Hospital, Boston, and during the World War was with the section on brain surgery in the surgeon general's office in Washington. Recently he has been associated with Dr. Adolf Meyer at the Johns Hopkins Hospital in experimental neurology. The resignation of Dr. Robert W. Johnson, Jr., as professor of orthopedic surgery was also announced. He will be succeeded by Dr. Allen Fiske Voshell, associate professor of orthopedic surgery at the University of Virginia *Medical Department, Charlottesville.*

Full Time Health Service Extended.—Seventeen counties in Maryland now have full time health service. This total was reached recently when Garrett, Dorchester and Worcester counties were added to the list. Dr. Edgar A. P. Jones, formerly deputy state health officer for Caroline and Dorchester counties, was appointed health officer of Dorchester County. Dr. Bradford Massey, who was appointed to a similar position in Worcester County, had previously been deputy state health officer for Somerset and Worcester counties. Dr. George E. Clarke is the health officer for Garrett County. For the last two years he has been engaged in public health work in Washington, D. C. In addition to the seventeen counties that have full time service, Charles and St. Mary's counties form a sanitary district and share jointly in the services of a deputy state health officer. The remaining counties with part time service are Howard, Caroline, Queen Anne's and Somerset. The first step toward full time health service in the state was the establishment of sanitary districts in 1914. The first full time county health department was formed in 1922 in Allegany County.

MASSACHUSETTS

Society News.—Dr. Cadis Phipps, Boston, addressed the Bristol North District Medical Society, Mansfield, September 17, on "Management of Ambulatory Cases of Heart Disease." ——Clarence C. Little, LL.D., Bar Harbor, Me., will address the Worcester District Medical Society, October 14, on "Recent Advances in the Etiology and Treatment of Cancer."——The headquarters of the Massachusetts Medical Society, including the offices of the *New England Journal of Medicine,* have been moved into a new addition to the building of the Boston Medical Library, 8 the Fenway, Boston.

Meetings of Harvey Medical Society.—The William Harvey Society, which was founded by the students of Tufts Medical School, Boston, to further interest in medicine, recently announced the program for forthcoming meetings:

November 25: Dr. Chevalier Jackson, Philadelphia, "Bronchoscopy in the Prophylaxis of Diseases of the Lung," illustrated.
December 11: Dr. Hans Zinsser, professor of bacteriology and immunity, Harvard University Medical School, "The Lesson to Be Derived for Education in General from Recent Changes in Medical Education."
January 8: Hon. James M. Curley, mayor of Boston, "What the City of Boston Is Doing to Promote the Public Health."
February 12: Dr. Stanley Hart Osborn, commissioner of health of Connecticut, Hartford, "Problems of and Opportunities in Public Health."
March 11: Dr. Walter B. Cannon, George Higginson professor of physiology, Harvard University Medical School, "Vivisection and Animal Experimentation."
April 8: Dr. George W. Crile, Cleveland, "Biologic Indications for and End-Results of Denervation of the Adrenal Gland."
May (date not announced): Dr. Fred H. Albee, professor of orthopedic surgery, New York Post-Graduate Medical School, "Bone-Graft Surgery."

Dr. Russell L. Cecil, assistant professor of clinical medicine, Cornell University School of Medicine, addressed the society, October 9, on "The Bacteriologic Point of View." This talk was supplemented with an illustrated lecture on arthritis.

MICHIGAN

State Medical Election.—Dr. Carl F. Moll, Flint, was installed as president of the Michigan State Medical Society at its annual meeting in Pontiac, September 22-24, and Dr. James Milton Robb, Detroit, was made president-elect. The next annual meeting of the association will be held in Kalamazoo.

Society News.—Dr. Harry A. Pearse, Detroit, addressed the Lenawee County Medical Society, September 15, on "Pathologic Obstetric Conditions in Regard to Dystocia."——Dr. John E. Gordon, Detroit, addressed the Gratiot-Isabella-Clare County Medical Society, September 17, on "Clinical Aspects of Poliomyelitis."——"Prophylactic Obstetrics" was the subject of Dr. Magnus P. Urnes, Chicago, before the Calhoun County Medical Society, October 6. A motion picture with sound on "Low Cervical Cesarean Section" was shown at this meeting.

Children's Clinic Affiliates with University.—The Northern Michigan Children's Clinic at Marquette will be operated as a branch of the University of Michigan Hospital under an agreement between the trustees of the clinic and the university approved by the board of regents, it was announced, September 27. The clinic represents a cooperative undertaking involving the University of Michigan Post Graduate Medical Department, St. Luke's Hospital and the Children's Fund. Children who are state wards will be treated at Marquette or moved to Ann Arbor if the equipment of the University Hospital is needed. Children of nonindigent parents will be received at the University Hospital on request of family physicians. It was said that the arrangement will reduce the cost of hospitalization to the state, and permit the university to extend its services to the people of the upper peninsula. The Northern Michigan Children's Clinic was opened last June (The Journal, June 27, p. 2218).

NEVADA

State Medical Election.—At the annual meeting of the Nevada State Medical Association, September 19, Dr. Amos C. Olmsted, Wells, was installed as president and Dr. Ontie Hovenden, McGill, was chosen president-elect. Dr. Horace J. Brown, Reno, is secretary. The next annual session will be held at Reno, Sept. 23-24, 1932.

NEW JERSEY

Outbreak of Typhoid.—Following the discovery of nine cases of typhoid, the Wanaque Board of Health issued a proclamation, September 21, barring children under 16 years of age from the streets and highways of the borough of Wanaque. Persons under 18 years were also forbidden to attend public or private gatherings. It was stated that most of the typhoid was found in one section of the borough.

NEW YORK

Society News.—The Medical Society of the County of Albany, meeting September 23, heard the following Albany speakers: Dr. John A. Sampson, on peritoneal cancer; Henry L. K. Shaw, the local epidemic of poliomyelitis, and Thomas O. Gamble, ten years of obstetrics.——At the annual meeting of the third district of the Medical Society of the State of New York, Sharon Springs, September 16, speakers were Drs. Smith Ely Jelliffe, New York, "Mental Apparatus and Internal Medicine"; Russell L. Cecil, New York, arthritis, and Thurman B. Givan, Brooklyn, congenital syphilis.

New York City

First Harvey Lecture.—The first Harvey Society Lecture of the winter season will be given by Wilbur W. Swingle, Ph.D., professor of biology, Princeton University, Princeton, N. J., at the New York Academy of Medicine, October 15, on "The Hormone of the Suprarenal Cortex."

The Sir Robert Jones Lecture.—Dr. William Edward Gallie, professor of surgery and clinical surgery, University of Toronto Faculty of Medicine, Toronto, will give the second Sir Robert Jones Lecture, October 13, at the Hospital for Joint Diseases, on "Further Advances in the Use of Living Sutures."

Society News.—Drs. Elis Berven, Stockholm, Sweden, and Henri Coutard, Paris, gave addresses at Mount Sinai Hospital, September 28, on treatment of malignant disease and roentgen diagnosis of tumors, respectively.——A symposium on after-care of poliomyelitis featured the meeting of the Bronx County Medical Society, September 16; the speakers were Drs. James P. Leake, U. S. Public Health Service; Joshua H. Leiner, and Samuel W. Boorstein.——Dr. John J. Moorhead addressed the Medical Society of the County of Kings at its first autumn meeting, October 2, on "The Practice of Traumatic Surgery."

Graduate Courses at Mount Sinai Hospital.—A group of medical courses for qualified graduates in medicine will be offered by the extension division of Columbia University in cooperation with Mount Sinai Hospital, beginning October 29 and extending to December 24. The work will include courses in general medicine, gastro-enterology, diseases of the chest, pediatrics, neurology and psychiatry, gynecology, ophthalmology, dermatology, radiography, physical therapy and laboratory methods. Officers of instruction will be members of the hospital staff. Part of the time will be spent in theoretical discussion and part in demonstration and examination of patients. Further information may be obtained from the secretary of the committee on medical instruction at the hospital, One Hundredth Street and Fifth Avenue, New York.

Report on Air Pollution.—There is an air pollution problem in New York and other cities which is a serious menace to health, according to a report of the committee on public relations of the New York Academy of Medicine. About four tons of the solids of smoke, including soot, are deposited each month on every square mile of the city, it is reported. According to the New York *Times*, Dr. Wynne announced that, as a result of the activities of the Smoke Abatement Commission, which has been combating air pollution for thirteen months, and the findings of its trial board each Monday morning, air pollution by smoke in New York had been abated by more than 60 per cent. The study was carried on by a subcommittee of the committee on public relations, consisting of Dr. Conrad Berens, chairman; Dr. Wesley C. Bowers, Dr. Alfred F. Hess, Dr. Grant Thorburn, and E. H. Lewinski-Corwin, Ph.D.

Analysis of Poliomyelitis Epidemic.—A study of the first 500 cases of poliomyelitis reported from Brooklyn in the recent epidemic has been completed by the bureau of health education of the department of health. In 469 cases it could not be proved that the victims had been in contact with the disease. Housing and general conditions in the home apparently had little to do with the etiology, the investigators concluded, as 405 cases occurred in homes rated as good or fair. Young children were most frequently attacked, 339 of the 500 victims being between 1 and 5 years old and 98 between 5 and 9. Of the 500 cases studied, 328 were in children of American parents; 64, Italian; 43, Russian; 15, Polish, and 14, Austrian. A new study is to be made of the 364 cases first reported in an effort to trace the source of the infection. A record will be made of the activities of the patients, their parents and relatives during the three weeks prior to the attack of poliomyelitis, including any information tending to link them up with a possible contact. A study of cases at the Willard Parker Hospital has shown that paralysis developed in only 17.5 per cent of the cases that were recognized in the preparalytic stage. Probable explanations of the low incidence, as reported to the health department by officials of the hospital, were earlier recognition and treatment, recognition of a larger number of cases that formerly escaped diagnosis, and the mild nature of the present outbreak. Two new pamphlets have been prepared by the health department, one on "How to Care for Infantile Paralysis Patients," which will be sent to homes in which the disease has occurred; the other, a reprint of "Muscle Training in Infantile Paralysis," by permission of Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, which, it is believed, will be of value to physicians. From January 1 up to October 2 there had been 3,823 cases with 436 deaths.

NORTH CAROLINA

Society News.—Dr. Julian D. Hart, Durham, read a paper on skin transplantation before the Buncombe County Medical Society, Asheville, August 17. The society was addressed, August 3, by Dr. Paul A. McIlhenny, New Orleans, on arthritis.——Dr. Christopher Johnston, Durham, addressed a recent meeting of the Gaston County Medical Society, Gastonia, on "Complications of Diabetes."——Drs. Claiborne T. Smith, Rocky Mount, and Sidney S. Smith, Jr., Raleigh, addressed the Fourth District Medical Society, Wilson, August 11, on "Thrombocytopenic Purpura" and "Pyelonephritis," respectively.

OHIO

Society News.—The fall meeting of the Central Tri-State Medical Society (Kentucky, Ohio and West Virginia) was held at Portsmouth, September 17, with the following speakers: Drs. Edgar M. Freese, Columbus, on "Prevention and Treatment in Industrial Practice"; Arthur M. Mendenhall, Indianapolis, "Recent Advances in Obstetrics"; John F. Erdmann, New York, "Diverticulitis and Diverticulosis," and William A. Hudson, Detroit, "Motor Phenomena of the Tracheobronchial Tree."——Dr. Myron H. Powelson, Zanesville, addressed a joint meeting of the medical societies of Hocking, Athens and Perry counties, Logan, September 16, on "Occlusive Vascular Diseases."——Dr. Ray W. Kissane, Columbus, addressed the Knox County Medical Society, Mount Vernon, September 24, on "Relation of Personal Habits to Adult Heart Disease."——Dr. Elijah J. Gordon, Columbus, add[illegible] County Medical Society, October [illegible] examination.——Dr. John A. Fisher, [illegible] the Fayette County Medical Society, Washington Court House, October 1, on hematuria.

PENNSYLVANIA

Society News.—Four Philadelphia physicians will conduct clinics at the annual fall clinical meeting of the Fayette County Medical Society, Uniontown, October 22, as follows: Drs. Henry L. Bockus, gastro-enterology; George M. Piersol, internal medicine; Harry B. Wilmer, allergic diseases, and John

Eiman, pathology.——Dr. Jacob F. Crane, Warren, addressed the Warren County Medical Society on "Toxemias of Pregnancy" in August.

Philadelphia

University News.—Every freshman reporting at the University of Pennsylvania for the fall term received a complete physical examination, the first activity of the student health service opened this year under the direction of Dr. Harry D. Lees. If the examination disclosed defects in a student so serious as to render it unwise for him to continue the university course, he was to be advised in time to make the necessary adjustment before the opening of classes. All defects were recorded and efforts will be made to have these corrected.

Personal.—Dr. Elmer H. Funk has been appointed to the Sutherland M. Prevost chair of therapeutics, materia medica and diagnosis at Jefferson Medical College to succeed the late Dr. Hobart Amory Hare.——Dr. Edward A. Schumann has been appointed surgeon-in-chief of the Kensington Hospital for Women, succeeding the late Dr. Harry C. Deaver.——Dr. Clarence R. O'Crowley, Newark, N. J., has been appointed assistant professor of urology at the University of Pennsylvania Graduate School of Medicine.

Society News.—Five physicians will address the Philadelphia County Medical Society at its first scientific meeting of the year, October 14, as follows: Drs. Ralph M. Tyson, "Medical Management of Infantile Paralysis"; Harry Hudson, "Surgical and Physical Management of Infantile Paralysis"; Basil R. Beltran, "Injection Treatment of Varicose Veins"; Claude P. Brown, "Why Vaccine Therapy May Fail," and John O. Bower, "Appendicitis Mortality."——Speakers before the Obstetrical Society of Philadelphia, October 1, were Drs. Franklin L. Payne, "Investigation of Sterility"; Charles C. Norris and Douglas P. Murphy, "End-Results in Ninety-Three Cases of Carcinoma of the Ovary," and Floyd E. Keene and Robert A. Kimbrough, Jr., "End-Results in Cases of Carcinoma of the Cervix Uteri Treated from 1913 to 1926."——Marjory Stephenson, of the Medical Research Council of England, addressed the Pathological Society of Philadelphia, October 8, on "Problems of Bacterial Respiration."——At a meeting of the Philadelphia Roentgen Ray Society, October 1, Prof. Dr. Fedor Haenisch, Hamburg, Germany, showed motion pictures demonstrating fire tests of x-ray films.

RHODE ISLAND

Society News.—Dr. Carl D. Sawyer, Providence, addressed a recent meeting of the Washington County Medical Society, Westerly, on "Common Skin Diseases and Their Treatment."——At the meeting of the Providence Medical Association, October 5, four speakers discussed "The Diseased Gallbladder." Drs. Harvey E. Wellman, the clinical problem; Philip Batchelder, the radiologic aspect; Benjamin Earl Clarke, the pathology, and Arthur T. Jones, the treatment.

TENNESSEE

Diploma Lost.—The University of Tennessee College of Medicine, Memphis, reports that the medical diploma issued to Dr. Wilbur Clifton Batson, June 2, 1930, has been lost at his home in Cunningham. A duplicate has been issued to Dr. Batson, who now lives in Westwood, Calif.

Health at Knoxville.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended September 26, indicate that the highest mortality rate (20.1) appeared for Knoxville, and the rate for the group of cities as a whole, 9.8. The death rate for Knoxville for the corresponding period last year was 7.3, and for the group of cities, 10.5. The annual rate for eighty-two cities was 12.1 for the thirty-nine weeks of 1931, as against a rate of 12 for the corresponding period last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

Society News.—Drs. John C. King and Cecil E. Warde addressed the Memphis and Shelby County Medical Society, Memphis, August 4, on "Fever as a Therapeutic Agent" and "Vaginal Delivery After Cesarean Section," respectively.——Metabolism and hypertension were the subjects discussed by Dr. Robert B. Wood, Knoxville, before the August meeting of the Hamblen County Medical Society.——Drs. William D. L. Record and William A. Reed addressed the Hamilton County Medical Society, Chattanooga, September 24, on "Surgery of the Rectum" and "State Medicine," respectively. "Qualification of an Expert and Non-Expert Witness" was the subject of Dr. Jesse B. Swafford before the society, September 10, and hypertension that of Dr. William E. Vaden.——"Borderline Pathology and Oral Surgery" was the subject of Howard M. Taylor, D.D.S., Memphis, Tenn., among others, before the Tri-County Medical Society (Hancock, Claiborne, Union counties), August 24.——Among others, Dr. Gilbert J. Levy, Memphis, addressed the Henderson, Chester and Decatur Counties Medical Society, August 13, on "Serum Therapy and Reactions in Communicable Diseases."——Dr. Robert B. Wood, Knoxville, among others, addressed the Roane, McMinn, Monroe and Loudon County Medical Society in Lenoir City, September 3, on "Myocardial Failure."——The Robertson County Medical Society was addressed in Springfield, August 18, by Drs. John M. Lee and Carl S. McMurray, Nashville, on "Throat Infections in Infants and Children" and "Endocrinology in Gynecology," respectively.——Dr. Edward H. Barksdale addressed the Nashville Academy of Medicine, September 29, on "Excessive Frequency of Urination."——Dr. William D. Haggard, Nashville, among others, addressed the East Tennessee Medical Association, Greeneville, September 29, on "Management of the Toxic Thyroid."

UTAH

Society News.—Dr. Robert C. Coffey, Portland, Ore., read a paper on "The Field of Usefulness of Gauze Drainage and the Quarantine Pack in Connection with Abdominal and Pelvic Surgery," before the Weber County Medical Society, recently.

State Medical Election.—Dr. Richard A. Pearse, Brigham, was installed as president and Dr. Frank M. McHugh, Salt Lake City, was chosen president-elect of the Utah State Medical Association at its meeting in Salt Lake City, September 10. Other officers elected were Drs. George M. Fister, Ogden, John G. McQuarrie, Richfield, and George H. Christy, Vernal, vice presidents; Leland R. Cowan, Salt Lake City, secretary, and Franklin H. Raley, Salt Lake City, treasurer. The 1932 session will be held in Ogden.

WASHINGTON

Personal.—Dr. Edgar F. Dodds, Tacoma, has been appointed Pierce County health officer.——Dr. Robert N. Hamblen, Spokane, was elected president of the Public Health League of Washington at its eleventh annual meeting in Aberdeen, August 4.

Society News. — Three Tacoma physicians addressed the King County Medical Society, Seattle, October 5, as follows: Drs. Horace J. Whitacre, "The Problem of Organized Medicine"; Wilmot D. Read, "Economic Questions Within the Profession," and Warren B. Penney, "Responsibility of the Individual Doctor in Meeting Organization Requirements."

H. H. Harvey Works Under an Alias.—Thomas Nelson & Sons, New York book publishers, report that they have received information indicating that one C. R. Mathison, now representing that firm in the Northwest, is H. H. Harvey, who was recently reported to be posing as a representative of the W. F. Prior Company, Baltimore (The Journal, September 19, p. 860). Pending further investigation, the Nelson firm has ordered Mathison to discontinue work and to return samples and credentials.

WISCONSIN

Society News.—Drs. Ray C. Blankinship and Robin C. Buerki, both of Madison, addressed the Waupaca County Medical Association, Clintonville, September 24, on "Gastro-Intestinal Conditions" and "Relationship of the General Hospital to the State," respectively.——Drs. Rosco G. Leland, Chicago, William A. O'Brien and Charles B. Wright, Minneapolis, discussed periodic health examinations at a meeting of the Polk County Medical Society, with the medical societies of the surrounding counties as guests, September 25, at Osceola.——Drs. Wellwood M. Nesbit and Edwin F. Schneiders, Madison, addressed the Marathon County Medical Society, Wausau, August 25, on "Headaches of Nasal Origin" and "Precancerous and Cancerous Lesions of the Uterine Cervix," respectively.

GENERAL

Conference for Control of Opium. — Members of the League of Nations conference on limitation of the manufacture of narcotic drugs, which met in Geneva from May to July (The Journal, May 9, p. 1623, and August 15, p. 471), at the end of deliberations during which an international convention governing the manufacture of narcotics was elaborated, set in motion plans for a later conference on the limitation and control of opium. It was recommended that the league's opium advisory committee and the league's secretariat be instructed to set to work at once to collect and coordinate material necessary for the adequate preparation of the conference.

Rat-Proofing of Ships.—For several years the U. S. Public Health Service has been developing the principles and technic of rat-proofing vessels effectively. This work has been placed on such a firm basis, it is reported, that the details and specifications are now standardized. These specifications have also been adopted and promulgated by the American Marine Standards Committee as Marine Standard number H-41, the observation of which is mandatory for construction of new ships with government loan aid. It was found that, if the nesting places and harborages for rats were eliminated, the possibility of rats finding a place to colonize on board ship would be greatly diminished and the ship would therefore be less likely to spread rat-borne diseases. A recent publication issued by the U. S. Public Health Service, dealing with the rat-proofing of vessels, contains illustrations and drawings together with general instructions for the rat-proofing of ships.

Prevalence of Communicable Diseases.—Newspapers reported, September 19, that the epidemic of typhoid at the state hospital for the insane, Cleveland, was under control, as no new cases had been reported for three days. At that time nine deaths had occurred and 118 of the 132 patients stricken were still under treatment. All beaches in Cleveland were closed by the health department, as sewage from the institution goes into Lake Erie. Dr. Harry G. Southard, state health commissioner of Ohio, advocated inoculation of all state wards to avoid similar epidemics in the future. ——There were seventeen cases of typhoid in Detroit in September, many of which were the result of swimming in the Detroit River at forbidden places, according to the health department.——Twenty-five cases of typhoid reported from the village of Mingo Junction, Ohio, led the state health department to send an investigator to study the milk and water supply for the source.——The Irvine-McDowell Hospital, Richmond, Ky., was placed under quarantine, September 25, after a woman and child admitted for treatment for trachoma were found to have smallpox. The thirty-seven patients and attendants at the hospital, an institution for treatment of trachoma, were immediately vaccinated.——Diphtheria is reported to be epidemic in several Kentucky counties: twenty-two cases in Muhlenberg, twelve in Ohio and several each in Knox and Laurel counties. Twenty-five cases, with four deaths, were reported, September 25, from Greene County, Ga. An epidemiologist from the state board of health immunized nearly 2,000 children in the county.——Infantile paralysis continues to be reported sporadically. The state legislature of New York appropriated $115,000 as a special fund to fight permanent paralysis in victims of the recent epidemic in the state. Smith College, Northampton, Mass., delayed the opening of the school year to October 12, because of the presence of the disease in the Connecticut Valley. Thirty-two students in a fraternity house at the University of Illinois were placed under quarantine, September 26, after the death of a student. Other cases did not develop.

CANADA

Hospital at Edge of Arctic Circle.—It is planned to open a hospital at Chesterfield Inlet, 500 miles north of Churchill, Manitoba, to be in charge of Bishop Turquetil and four nurses who are members of a religious order. This will be the farthest north hospital on the North American continent. The hospital will serve the nomadic Eskimos, the hunters and prospectors. It is also planned that educational courses in hygiene will be given to the Eskimo children.

Beriberi in Newfoundland.—An outbreak of beriberi involving more than 600 persons has been reported from Newfoundland. The appearance of the disease is attributed to the failure of the fishery on the southern coast last year, as a result of which the fishermen lived on an exclusive diet of white bread. It is said that they refuse to eat whole wheat bread. The Newfoundland board of health has issued a bulletin dealing with the symptoms and urging the use of whole wheat flour and green food to avoid the disease.

Society News.—Among speakers at the annual meeting of the New Brunswick Medical Society, Campbellton, July 14-15, were three Boston physicians: Drs. W. Russell MacAusland, on "Progress in Treatment of Fractures"; Richard B. Cattell, "Diagnosis and Treatment of Carcinoma of the Rectum," and Louis E. Phaneuf, "Physiotherapy."——Drs. George S. Young and William B. Hendry, Toronto, were guest speakers at the annual meeting of the Medical Society of Nova Scotia, Truro, in July, on "Mental Aspects of Disease" and "Antenatal and Postnatal Care," respectively.

University News.—Dr. Alvin T. Mathers has been appointed dean of the Medical Faculty of the University of Manitoba to succeed the late Dr. Samuel W. Prowse. Robert G. Inkster, demonstrator of anatomy at the University of Leeds, has been appointed professor of anatomy.——Two gifts to aid research have recently been presented to McGill University, Montreal, by Mrs. Blanche Hutchinson, Baie d'Urfe, Que.: one of $10,000 to be used by the department of psychiatry in connection with the work of Dr. David Slight, the other of $4,000 to further the research of Dr. Maurice Brodie on infantile paralysis.

Campaign Against Maternal Mortality.—Realization that the maternal death rate of Toronto is higher than that of the province or that of the entire dominion led representatives of women's organizations and health and social agencies of the city to undertake an intensive campaign to teach women the importance of prenatal care. A special committee on maternal welfare has adopted a program including organization of a speakers' bureau whose services are offered to all clubs and groups in the city; a series of radio broadcasts; research to collect and interpret information on the situation, and a pageant on motherhood to be presented as a conclusion to the period of intensive campaigning, the *Canada Lancet and Practitioner* reports. The Toronto Academy of Medicine, it was pointed out, was asked to cooperate.

FOREIGN

Medical Lectures for Travelers.—A series of eight lectures on tropical hygiene for persons outside the medical profession who are going to the tropics is to be given, October 21-30, by Lieut.-Col. George E. F. Stammers, at the London School of Hygiene and Tropical Medicine. The instruction will include accounts of more common diseases, with advice on measures of protection and guidance in simple methods of treatment. Further information may be obtained from the secretary of the school, Keppel Street, Gower Street, London, W. C. 1.

Faraday Centenary.—The *British Journal of Physical Medicine* devoted its September issue largely to discussion of Michael Faraday, in honor of the centenary of his discovery of electromagnetic induction. Various articles discuss the influence of his discoveries on the use of electricity in the treatment of disease. Born in 1791, Faraday was forced to leave school at the age of 10, when he became errand boy in a book shop. Later he was apprenticed to the trade of bookbinding and used his leisure time in reading scientific books. He began to experiment with home-made apparatus. In 1812 he heard Sir Humphry Davy lecture. A letter to Sir Humphry expressing his desire to enter a scientific occupation resulted in his becoming bottle washer in the laboratory at the Royal Institution and later superintendent of the apparatus. In 1825 he was made director of the laboratory, where he experimented for seven years to show that a magnetic field could produce an electric current.

Centenary of the Leeds School of Medicine.—The one hundredth anniversary of the founding of what is now the Medical Faculty of the University of Leeds was celebrated, July 1, with a special congregation of the university, attended by about fifty representatives of the universities and institutions of Great Britain. The Duke of Devonshire, chancellor of the university, and Sir James Baillie, vice chancellor, made addresses of welcome, to which Sir Humphry Rolleston and Major-General Hime of the Royal Army Medical Corps replied with felicitations on the centenary of the school of medicine. Honorary degrees were conferred on Dr. Arthur Hawkyard, lord mayor of Leeds, Dr. Jane Walker, Dr. Alfred G. Barrs, Sir John Bland-Sutton, Lord Dawson of Penn, Sir Walter Morley Fletcher, Sir Gowland Hopkins and Sir George Newman. The Leeds school of medicine, after an independent career of more than fifty years, was united in 1884 with the Yorkshire College, which afterward became a constituent college of the Federal Victoria University. On the disruption of Victoria University in 1904 the University of Leeds emerged as an independent school. The present building of the school of medicine, built in 1894, has recently been extended to provide more room for the departments of physiology and pathology.

Deaths in Other Countries

Sir William John Ritchie Simpson, director of tropical hygiene, Ross Institute, and emeritus professor of hygiene and public health at King's College, the University of London, September 20, aged 76, of pneumonia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 12, 1931.

The Birth Rate and Birth Control

In his presidential address before the Sanitary Inspectors Association, Sir Leonard Hill said that the birth rate was now the subject of intensive propaganda among the masses of the people, and the no-child or one child home was becoming the rule. Although the unskilled continued as yet to breed more than the skilled, birth control was practiced in every class of society. The result was that between 1921 and 1931 the population of Great Britain increased hardly more than in the previous decade, which included the war. The infant mortality had fallen from 167 per thousand births at the end of the last century to 60 in 1930, but this did not compensate for the enormous drop in the birth rate. The annual increase of births over deaths per thousand living was 12 at the end of the last century but in 1929 was under 3, so that soon the population would be stationary. Three children per family were required to keep up the population. The Japanese were increasing at the rate of a million a year. They were multiplying just as we did with the coming of the industrial revolution, and, with a birth rate continuing to rise at the present rate, in thirty years would number 100 millions, and be the largest great power. They had 27 million agricultural workers to keep up the virility of the race. Our dominions and colonies occupied a fourth of the best land in the world, and we ought to send thither 250,000 emigrants a year, and these should be young people who would breed. The alternative was to leave that vast area unoccupied or to be colonized by other nations. If the white men were going to lessen their breeding rapidity they must see to it that colored races were taught the methods of doing so. At present such races were kept down to the level of the food supply by high infant mortality, famines and epidemics. The population of the world was increasing by some 12 millions a year, but this could not continue. A far less cruel world could be brought about only by limitation of the birth rate, but this must be coupled with the duty of keeping up a virile race. Birth control was at a minimum among those with a tendency to mental defect, and there was some danger of increase in inferior types.

National Economy and Panel Physicians

The socialist government has come to a sudden end in consequence of extravagant expenditure on "social services." It has brought the country, notwithstanding taxation far in excess of any other country, an estimated budget deficit of $350,000,000 this year and of $870,000,000 next year. Nothing but ruthless further taxation and economy will save the country. A wholesale reduction of the salaries of civil servants from cabinet ministers down to school teachers and panel physicians is proposed. An economy committee appointed by the government has proposed, among its cuts, the reduction of the capitation fee of panel physicians from 9 to 8 shillings. Representatives of the Insurance Acts Committee of the British Medical Association met the minister of health by request. He assured them that comparable contributions to the needs of the exchequer would, as far as practicable, be secured from other bodies of persons concerned with the administration of the national health insurance acts and not from physicians alone. He appreciated that payments under the capitation system were subject to the necessary outgoings on account of expenses of practice, but he felt that physicians would recognize that the deduction was not unreasonable by comparison with the contributions called from other sections of the community. The representatives of the committee stated that they could not accept the statement in the economy report that payments to physicians are too large. The minister replied that the deduction was not based on any consideration of justification but on the financial state of the country. On receiving the report of its representatives and after due consideration of the whole situation, the committee expressed the opinion to the minister that insurance practitioners will be prepared to bear their fair share of the burden which the community generally will be called on to bear.

Concussion and Memory

At a meeting of the Medico-Chirurgical Society of Edinburgh, Dr. C. W. Somerville reported a number of cases showing the effect of cerebral concussion on memory—a subject of considerable medicolegal importance in these days of automobile accident. The reliability of the testimony of the victim of concussion presents a grave problem to both the medical and the legal profession. Dr. Somerville finds that in many cases there is no loss of memory of events preceding the accident but the victim does not remember the "bump" and may be confused as to subsequent events. Thus in hill climbing Dr. Somerville fell over a cliff 20 feet high and became unconscious. When he came to he thought he was not hurt but found that he had broken his arm and dislocated his wrist. He remembered falling but not the bump or rolling down the slope. A fellow student was thrown on his head from a horse on the 10th of the month. When he recovered, he thought it was the 3d of the month. One week's memory was lost, but there was no confusion. A motor bicycle skidded and crashed. The rider was rendered unconscious but recovered and spoke to the bystanders. His head was badly cut and he was in the hospital three weeks. He remembered how he crashed, being forced by a passing automobile into a rut, but his memory of subsequent events was impaired; he did not remember speaking to the bystanders. Now comes the medicolegal aspect. One cyclist was run into by another and thrown. He was still unconscious when Dr. Somerville arrived, but during the examination he opened his eyes and gradually recovered consciousness. When the doctor came to his house a day or two later the parents looked strangely at him and said: "Fred says it was you who ran into him." He persisted in this recollection, but the arrival of the other cyclist at the house rendered it unnecessary for the doctor to defend himself from what seemed a quite plausible charge. This case formed the basis of the evidence for the defense in a famous Edinburgh trial for murder, known as the Merrett case. John Donald Merrett telephoned to the police that his mother had shot herself. She was taken unconscious to the Royal Infirmary. On recovering she told the nurses that she had been writing a letter—she told correctly to whom—when her son was standing by, and she said to him, "Go away, Donald, and don't annoy me." Then there was something like a pistol shot. She died from septic meningitis with a bullet in her brain and her son was tried for matricide. Prof. G. M. Robertson, the psychiatrist, was called for the defense. He gave the preceding case, which was reported to him by Dr. Somerville, as an illustration of the fact that a person who has sustained a head injury may be confused as to who inflicted the injury. The cyclist had no knowledge of what took place but concocted a story which he believed to be true. In the murder case, nurses gave evidence that the conversation of the woman was so rational and connected as to convince any one but an expert that she knew what she was saying. Professor Robertson admitted that what she said was of value as evidence, if material corroboration was forthcoming. His experience was that in head injuries recollection does not as a rule come up to the period of the accident. The jury brought in a verdict of "not proven."

In the discussion which followed, Sir Montagu Cottetill, the surgeon, described the effects of a fall from a motor bicycle on himself. He remembered everything distinctly up to about two minutes before the accident. After that there was an entire blank. He was picked up by a friend and taken home. During the drive of three or four minutes he delivered an elaborate lecture on the necessity of trephining in cases of compression of the brain due to fractured skull. He was unconscious when taken into his house and put to bed and afterward had no recollection of the lecture. He reported also an extraordinary case in which a man was thrown from a cart, suffered concussion, and was unconscious for six days. When he recovered he had completely lost memory of the preceding two and one-half years. The result of the whole discussion is to show that in cases of concussion memory may be complete up to the injury or a variable preceding period may be completely cut out, that there is no recollection of the "bump" or "crash," and that the patient's description of the circumstances of the accident may be an illusion.

PARIS

(From Our Regular Correspondent)

Aug. 26, 1931.

Compensation for Scientists for Their Discoveries

The question of rights to scientific discoveries, which has been occasionally discussed for many years, appears to be entering a more active phase. Mr. Lucien Klotz, who was invited to address the Academy of Medicine, called attention to the wretched economic condition of many scientists who are the authors of accounts of discoveries that contribute to the prosperity of commercial establishments that exploit them. He cited the case of Branly, whose research made possible the wireless telegraph and wireless telephone and who is spending his old age in destitution, whereas the broadcasting companies are realizing great profit from his work. His case is far from being isolated. Klotz suggests that companies exploiting a discovery in pure science be required to pay into a certain fund a small percentage of their profits each year, a part of which amount should go to the author of the discovery and the remainder be distributed among reseach laboratories to promote investigation. The academy appointed a committee to study the problem, and Madame Curie, its spokesman, reported conclusions entirely in line with Klotz's suggestions. Mr. Fourneau, a member of the academy, opposed, however, the conclusions, saying that from a practical point of view scientific researches usually end with the formulation of theories, many of which cause financial loss to those who try to translate them into realities and to exploit them with their own financial resources, whereas the scientist incurs no financial risk whatever. He added that, if the laboratories are short of funds, it is because there are too many. It would be an advantage to reduce the number and thus economize in material scattered among too large a number. The opposition of Mr. Fourneau was surprising, for he himself exploits the discovery of an anesthetic, called "stovaine." He patented the process and sold the patent to a company of manufacturing chemists, who pay him a large royalty. Most scientists do not patent their discoveries. The securing of a patent entails considerable expense and the discovery does not always find a manufacturer who will buy it; furthermore, the patent laws allow one to patent, strictly speaking, only the apparatus and not the process itself, and they protect only a trade mark registered at the Tribunal du commerce. The French law protects the interests of the merchant and the manufacturer rather than the rights of the scientist. In medicine, many pharmaceutic specialties—widely advertised—are prepared according to formulas found in scientific works, medical journals and transactions of societies, and no authorization is obtained by the merchant from the author. Even though his name is given on the label of the container and in the prospectus, the author cannot stop the sale of the product, because, according to the law, the publication of his formula has made the latter "common property." On the other hand, the law does not permit the patenting of a pharmaceutic formula and prohibits the sale of remedies prepared in accordance with secret formulas. Authors of pharmacologic articles are thus deprived of all protection. The whole situation is so unjust that it has often been the subject of special investigations and conferences, some of which have been of an international scope, and in which Mr. Raymond Weiss, head of the legal department of the Institution internationale de coopération intellectuelle, in Paris, participated. The League of Nations has manifested interest in the problem since 1923. The Institut international de coopération intellectuelle is engaged in an extensive inquiry in regard to the question. A special meeting was called in Paris, in December, 1927, which was attended by manufacturers and lawyers, under the chairmanship of the Spanish scientist Julio Casarès. After three days of deliberation, resolutions were adopted, which appear to contain the elements of the international solution of the problem. The plan proposed is based on four principles, which Mr. Raymond Weiss commented on in a recent public lecture: 1. Every scientific discovery the use of which contributes toward the realization of a product that has commercial value entitles the author to protection. 2. The rights of the scientist begin with the publication of his discovery in a written work or a communication to a learned society. The publication itself creates priority, and, quite contrary to rulings with respect to invention patents, does not entail the forfeiture of the rights of the author during the time his discovery remains unexploited industrially. The only formality required would be the registration of his discovery at a special international bureau to be established, it is hoped, in the near future, the registration to be made by the scientist as soon as his discovery gives rise to exploitation, irrespective of the lapse of time since his original publication. 3. From the date of this registration, the duration of the period during which the author, protected by the international bureau, will be entitled to compensation from manufacturers exploiting his discovery would be thirty years. 4. The compensation of the author should be, as far as possible, amicably determined by an agreement between the parties concerned. The courts will not be called on to intervene unless the parties are unable to reach an agreement. A special provision states that, every five years, a revision of the contract may be demanded by one of the parties if the amount agreed on originally is considered insufficient or excessive. Furthermore, an insurance system might be created that would take the place of the manufacturers. The insurance system might be under the control of the government, of mutual societies or of the ordinary commercial companies, depending on the wishes of the various countries. The payments of manufacturers would be in the form of a fixed sum, the amount depending on the importance that scientific discoveries assume in their particular line of manufacture. After the scientists have been justly compensated, any excess might be used to aid such institutions as are of benefit to the people as a whole, such as hospitals and laboratories.

Heredity and Diabetes

Prof. Marcel Labbé, in an address delivered before the Academy of Medicine, discussed the hereditability of diabetes, in which field he has had a long experience. According to the majority of writers, such hereditability, long since recognized, exists in 25 per cent of the cases. A distinction is made between hereditary and familial diabetes, but in reality they have the same significance. Diabetes comes under an hereditary system that has functioned for centuries according to the laws of Mendel. Labbé distinguishes benign diabetes without denutrition, and grave diabetes with denutrition. The former is usually acquired as a result of prolonged superalimentation; the latter without known cause. Under the various forms of familial diabetes may be distinguished diabetes due to an hereditary influence and diabetes due to wrong familial habits of eating, which lead to superalimentation. In a hundred cases, Labbé and Landau found twenty-three cases of hereditary diabetes.

Evidences of heredity are found in 35 per cent of the grave cases of diabetes and in 20 per cent of the benign cases. The rôle of paternal heredity is much greater than that of maternal heredity. That is due to the fact that a diabetic woman rarely has children. The hereditary influence is, however, sometimes overcome, to a certain extent. Labbé stated that he had seen six children born of mothers with grave diabetes. While these children have not yet shown diabetic symptoms, it is possible that the disease will appear later. The hereditability of diabetes now is conceived of as the transmission of a functional insufficiency of the islands of Langerhans. It is difficult to understand why the insufficiency of the islands becomes apparent at different ages and remains latent for varying lengths of time. Hereditary transmission entails certain deductions with regard to the marriage of persons with diabetes. Some physicians prohibit marriage. In Labbé's opinion, in the majority of cases, diabetic persons who take good care of themselves may marry. Young diabetic women should, however, avoid pregnancy, as it is always dangerous for them.

BERLIN

(From Our Regular Correspondent)

Aug. 24, 1931.

Indications for Eugenic Sterilization

Prof. A. Mayer, director of the Universitäts-Frauenklinik, presented a report before the Tübinger Medizinisch-Naturwissenschaftlicher Verein on 219 tubal sterilizations performed in that clinic over a period of twelve years; they represent only 0.5 per cent of the total number of patients, evidence of a conservative policy. The patients sterilized may be divided into four groups: (1) sterilization plus interruption of pregnancy, 89; (2) sterilization plus cesarean section, 49; (3) sterilization plus gynecologic operation, 54; (4) sterilization only, 27. The indications fall into three classes: (1) obstetric-gynecologic (for example, narrow pelvis), 84; (2) medical (for example, pulmonary tuberculosis), 110; medical-eugenic (for example, epilepsy, psychoses), 25. The bases for eugenic sterilization are uncertain, as the "laws" of hereditary transmission are not sufficiently well known and because the present status of our laws does not permit such intervention. The United States with its compulsory sterilization of criminals has taken a stand in advance of us. Some similar legislation would be desirable in Germany. In fact, a weak beginning has been made; a movement has been launched to legalize sterilization on eugenic grounds if the person concerned gives his or her consent. In the case of sexual crimes, castration would be indicated in place of sterilization; since in that manner not only inferior posterity would be obviated but possibly through elimination of the abnormal libido further crimes might be prevented. Sterilization for purely economic reasons should be refused by physicians; it is an unsound attempt to remedy economic distress by means of medical measures and to place the responsibility for the outcome on the operator. It is prohibited by law. Sterilization to remove the danger involved in sexual intercourse is opposed to good morals. No conscientious physician will perform a sterilizing operation on such indications; hence sterilization on such grounds will doubtless always remain contraindicated. On the use of contraceptive maneuvers and devices, a marked change in the attitude of physicians has occurred. In an earlier day, it was regarded as contrary to the ethics of the profession, during the course of a medical consultation, to discuss at all the subject of contraception. Then came the recognition of the medical indications, and now, of late years, the economic indications have been approved by a considerable portion of the medical profession. It will be admitted, however, that the unrestrained application of such measures awakens serious reflections; above all, unrestrained sexual license may cause demoralization, especially among the youth; a lowering of the dignity and worth of woman, and possibly race suicide. The danger is all the greater owing to the fact that birth control constitutes only one part of a program and a process that may lead to the dissolution of the family and the state. Centers for consultation on sexual matters, for the benefit not only of married persons but also of persons contemplating marriage, are therefore to be approved only if they are directed by physicians, and if the physicians realize their responsibility toward posterity and act in accordance with medical points of view. If the physicians wish to remain guides of the people, they must not allow themselves to be swept off their feet by the force of the current but must remain ever conscious of the fact that, along with the care of bodily health, they have a mission to perform in the preservation of moral values.

The Appearance of Children in Day Nurseries

In order to determine what have been the effects on the health of children, brought about by the economic conditions of the war period, the period of inflation and the present crisis, Drs. Felix Boenheim and Franz Heimann examined groups of children that they found in the municipal kindergartens and in the day nurseries. The demand for admission to these centers is great. Constantly, children have to be rejected who for social, hygienic and pedagogic reasons are in dire need of such care. As these writers said in the *Deutsche medizinische Wochenschrift,* the children examined were mostly the offspring of the unemployed and of recipients of welfare benefits. The living conditions were the worst imaginable; in many instances from eight to ten persons occupied small apartments consisting of one living room and a kitchen. The disorders in the children, resulting from the economic depression, are, to a great extent, irremediable. About 30 per cent of the *hort* children examined may be said to have bodies more or less permanently impaired. Some, in spite of institutional care, are still undernourished and stunted in their growth. The examinations, however, excluded the existence of all wasting diseases—also tuberculosis. The causes responsible for their condition are solely of an economic order. Whereas most of these children presented a growth and a weight that were below normal, some showed overweight, which must be regarded as "paradox obesity due to undernutrition." This pathologic picture, which was observed also during the war period, in which undernourished children appear too fat, is probably produced by hypothyroid conditions, although no special constitutional type is manifest.

Causes of Sudden Death

At the meeting of the Deutsche Gesellschaft für gerichtliche und soziale Medizin in Leipzig, Dr. Weyrich of Graz reported a series of observations on the sudden death of adults. The observations concerned 2,668 persons more than 20 years of age. The necropsy reports were for the years 1914-1917 and 1919-1929. The causes of death were traced to: disorders of the heart and the aorta, 42 per cent; respiratory organs, 23 per cent; urinary organs and organs of digestion, 13 per cent; brain, 9 per cent; other disorders, 13 per cent. Only in the group of disorders of the heart and the aorta was the mortality of males higher than the mortality of females (47 per cent as against 36 per cent). Of the various occupational groups, the mental workers showed the greatest and persons doing hard physical labor the slightest disposition to sudden death from disorders of the heart and the aorta. Sudden death as a result of brain disease was not as frequent in mental workers as in the other occupational classes.

Use of Bichromates in Printing

The use of bichromates in printing has increased in recent years owing to the growth of advertising, the extensive use of illustrations in journals and the necessity of getting out rapidly and cheaply large editions of documentary printing. The likelihood of eczemas developing among persons handling such printing material has therefore become much greater. At the instance of the federal ministry of labor, the federal public health service, with the cooperation of the university dermatologic clinic in Breslau, has therefore been studying the manifestations of skin disease in lithographers handling zinc and stone plates, and it was found that of the persons examined, who, during their work, come in contact with chrome compounds, chiefly bichromate, 27 per cent are affected with eczema, and that 85 per cent of the persons so affected manifested a hypersusceptibility to bichromate, which had been acquired chiefly through working with such substance. The federal public health service has therefore proposed certain precautionary measures. In preparing bichromate solutions, all production of dust should be avoided by dissolving in a bottle the crystals that have been weighed out. Before the crystals are broken up they should be moistened. Whenever direct contact of the hands with bichromate is unavoidable, long rubber gloves should be worn, as far as possible. Etching fluids containing bichromate should be avoided. In any room in which bichromate solutions or prepared plates are employed, vessels containing a solution of bisulphite should be at hand for cleansing the hands, as this reduces the bichromates and chromates to harmless compounds. The hands must afterward be thoroughly rinsed with fresh water. Persons who have given evidence of a hypersusceptibility to bichromates should, if possible, be transferred to another department in which such contact can be avoided.

ITALY

(From Our Regular Correspondent)

Aug. 15, 1931.

Blood Groups and Paternity

In a recent decision, the court of cassation of Italy accepted the validity of evidence based on the relation of the blood group of the child to the blood groups of the parents in an endeavor to establish personal identity. Contrary to a previous opinion of the court of appeals, the court of cassation does not consider the distrust of this new method of diagnosis justified on the ground that its technic has not reached perfection. According to the highest court of appeal in Italy, inevitable uncertainties were associated at first with the application of the Landsteiner theory, but these may be regarded as overcome through improvements in technic introduced by Lattes, by Schiff and by Cuboni. As for the certainty of the results obtained by the examination of the blood groups, the studies and the researches carried out in recent years show that, while such an examination does not furnish an absolutely sure basis for the affirmation of a given filial relationship, it constitutes unquestionable evidence for the exclusion of such a relationship when the blood group of the child does not harmonize, in accordance with a determined system, with that of the supposed parent. The court, however, emphasizes that, in order for the results of this research to be conclusive, the examination must be extended to the blood groups of both the parents, since the two agglutinogens, behaving as dominant mendelian factors, cannot appear in the children if they are not present in one or the other parent. Hence, it may be said that the child is the offspring of a third party only when it is found that his blood does not harmonize with that of the supposed father or with that of the supposed mother.

The Surgical Treatment of Duodenal Ulcer

At a meeting of the Società di scienze mediche di Conegliano e Vittorio, Professor De Gironcoli presented a communication on "Progress in the Surgical Treatment of Gastroduodenal Ulcer." The speaker gave a survey of the various operative methods. He stated that, of the nonradical methods, gastroduodenostomy gives the fewest negative results. In nonoperative indolent ulcer, the disadvantages of this method are less than the damage resulting from an operation carried out without any certainty of the presence of an ulcer. The speaker considers that the failures resulting from gastric resection, whether performed according to the first or the second method of Billroth, are to be attributed either to the lack of correct indications or to an insufficient or too extensive resection of the two stumps, or to defective technic. He recalls that also rare recurrent ulcers and the very rare postoperative ulcers may be the cause of the failure, while some nervous patients, in whom is lacking the anatomic substratum that gives rise to postoperative disorders and who, on the basis of fluoroscopic observations wrongly interpreted, are subjected to laparotomy, would be better served by medical treatment. Surgical treatment is more successful, the graver the lesion.

Malaria in the Province of Milan

Although malaria in the province of Milan is of a mild type, the provincial antimalaria committee, of which Prof. Sileno Fabbri is president, has introduced measures to eradicate the last vestiges of the infection from the Lombard region. A topographic chart has been prepared showing the areas affected and the ditches, ponds and pools that are breeding places of mosquitoes. Sanitation of the region was entrusted to a medical specialist and was accomplished by the use of paris green, Lemma (an aquatic plant), and by the introduction of Gambusia. Several antimalaria centers were created and many dispensaries were provided with quinine and other specific preparations.

International Congress of Military Medicine

At the sixth International Congress of Military Medicine and Pharmacy, held at Aja, the Italian delegation was headed by Prof. Filippo Caccia, colonel in the army medical corps and sanitary director of the Corpo d'armata of Rome. The third topic on the program, "Methods of Hemostasis on the Battle Field; Unification of First-Aid Equipment and the Method of Applying It," was presented by Colonel Caccia and Professor Casella. Their conclusions were as follows: The use of the tourniquet as a means of hemostasis on the field of battle is fraught with danger, especially in the hands of unskilled persons. It does not seem advisable, however, to discard it absolutely from the sanitary equipment, lest some other means of ligation still more harmful be substituted in case of emergency. The apparatus to be entrusted to nontechnical personnel should consist chiefly of bandages of elastic tissue (not rubber) and of hemostatic tampons. The stretcher bearers, the private soldiers and the officers should be shown the dangers connected with the use of the tourniquet and its sole indication, namely, a spurting hemorrhage. Hemostasis at the first-aid station may be left, to a certain extent, to the physician in charge (temporary closing of the wound by means of a skin suture or by clamps; tamponing; possibly application of an emergency bandage).

The congress approved the Italian presentation and passed a resolution that the instruction to be given the service personnel on emergency hemostasis be standardized in all the armies. It considered desirable the continuation of research indicated by the Italian speakers, designed to limit the dangers of ischemia due to the application of the tourniquet. It expressed the desire that the commission on standardization of equipment open a competitive inquiry on the best methods of effecting hemostasis.

The Italian authors read a paper on the fifth topic on the program, "Effects of War Wounds on the Teeth and on the Lower Jaw—Their Treatment," in which they emphasized that the prophylaxis of such sequels depends to a great extent on the initial treatment. The treatment of such lesions requires, from the beginning, the collaboration of the dentist and the surgeon. Infection of the bone fragments is especially to be feared. The treatment should discover and suppress every cause of infection. Pseudarthrosis and losses of substance that do not heal with the application of prosthesis belong to the field of surgery. Bone grafts may be indicated; metallic osteosynthesis is contraindicated. In wounds of the face, one must consider also the effect that such lesions have on the general condition and the morale of the patient. It is desirable to train in peace times a number of specialists to care for maxillofacial wounds in the various units of the army medical corps.

Meeting of the Council on Health

At the ministry of the interior, the Consiglio superiore di sanità met recently under the presidency of Professor Marchiafava. Dr. Basile, director general of the public health service, read a paper on the sanitary status of Italy during 1930, and the work done for the protection of the public health. He announced that work was under way on a large institute of public health in Rome, made possible through a gift of the Rockefeller Foundation. The institute is being erected in the university area and is designed to house the central scientific laboratories of the general management of the public health service. It will be the basis for a "school of application," of an essentially practical nature, for the technical personnel to be employed later in the service of hygiene and prophylaxis, controlled by the central government, the provinces and the communes.

The council then discussed forms of control pertaining to mineral springs, in order that Italy's hydrologic resources may be better utilized; likewise, regulations for the institutes of physical therapy and for the apparatus therein employed. Finally, the question of instruction in hygiene at the universities, in connection with the preparation for a health officer's career, was discussed.

Prof. Cesare Frugoni, medical clinician of Rome, was chosen as a member of the Consiglio superiore di sanità for the ensuing two years.

Pertaining to Higher Instruction

The cabinet has approved certain changes pertaining to higher instruction. It has been ordered that to the government examinations for certification as professional practitioners shall be admitted only those graduates in medicine who, during their course of study, passed successfully the examinations in special subjects. To the aids and assistants in the universities appreciable concessions, financial and otherwise, were granted. In place of the present terms "stabile" and "instabile," the expressions "ordinarius" and "extraordinarius," as applicable to university professors, have been reintroduced. Professors who are retired on account of age will receive the title of "emeritus."

Professor Calmette Awarded the Rovighi Prize

At the suggestion of the Commissione di pediatria, the decennial Rovighi prize has been awarded to Prof. Albert Calmette, assistant director of the Institut Pasteur in Paris, in recognition of his method of antituberculosis vaccination. The Accademia di Bologna refers to the Calmette method as a discovery that is unquestionably of the greatest importance for humanity and as one that has successfully passed its period of probation. Professor Calmette has turned over the amount of the prize to the Forlanini Foundation in Rome, with the request that it be used to aid research and be assigned to an Italian who is working on tuberculosis. He suggested that the Forlanini Foundation give preference, in the assignment, to Professor Ninni of Naples, who is just completing, at the Institut Pasteur, research on the filtrable elements of the tuberculous virus.

The Medicosurgical Society of Brescia

The Società medico-chirurgica bresciana met recently under the presidency of Professor Baratozzi. Professor Pignatti reported his results in the use of surgery in gastric tumors during four years of hospital practice in Brescia. He discussed recent cases of gastric resection for tumors, presenting the persons operated on. He admitted the uselessness of any serious surgical operation on a process far advanced and emphasized the importance of an early diagnosis, although he admitted that early diagnosis is difficult.

Dr. Pancotto and Professor Ubertini reported observations in an outbreak of undulant fever in the province of Brescia. In spite of the presence, for some time, in that region, of a widespread epizootic disease associated with abortion, no cases of Brucella in man had ever been observed until this outbreak. Research in the vicinity of the homes of the patients did not reveal any direct contacts between man and infected animals. Professor Ubertini discovered, on this occasion, a herd of cattle and goats manifesting abortion, and succeeding in isolating from the animals a micro-organism that may be regarded as probably Brucella melitensis. The speakers called attention to the importance of cheese and milk-containing foods as vehicles of infection, but expressed the opinion that the pathogenicity of the Bang bacillus for man is not comparable with that of the Brucella micrococcus, as otherwise outbreaks of undulant fever would be of constant occurrence, in view of the use of milk in so many foods.

Prizes for Large Families

The municipal government of Rome has established six prizes, to be awarded annually, over a period of five years beginning with 1932, to the largest and the healthiest families of the city. The prizes do not consist of money but of a warranty deed to a small house or apartment comprising at least four rooms and a kitchen. For the prizes may compete all parents, legally married, who, in the preceding four years, have had at least three children born to them in Rome and still living. Persons who are affected with transmissible diseases or who are addicted to alcoholism to such an extent as to impair the robustness of their offspring will be excluded from competition for the prizes. The prizes will be awarded every year on April 21, the anniversary of the natal day of Rome.

RIO DE JANEIRO

(From Our Regular Correspondent)

Aug. 15, 1931.

Injection Treatment of Cavities in Pulmonary Tuberculosis

Dr. A. MacDowell, head of the department of phthisiology of the Policlinica Geral, recently lectured before the Academia de Medicina of Rio de Janeiro on the results obtained by the injection of drugs into cavities in the treatment of pulmonary tuberculosis. The principal indications are as follows: (1) in cases of bilateral cavitation when artificial pneumothorax seems impossible; (2) when artificial pneumothorax fails to cause collapse of the cavities on account of broad adhesions to surrounding tissues, which cannot be resected by operation, and (3) finally, when pneumothorax fails to cause the closure of the cavities, even after the resection of one or more adhesions, because nonresectable adhesions are present. The speaker presented a patient who lived with tuberculous patients. Examination of the patient, when first observed, gave negative results for tuberculosis. He was admitted one year later to the clinic. He had pulmonary tuberculosis with a cavity of an exudative and ulcerous type in the upper lobe. Artificial pneumothorax was performed, and as a supplementary treatment 10 cc. injections of colloidal copper morrhuate were given. The patient obtained great relief. However, the cavity remained partially open as the result of broad adhesions which could not be sectioned, and it secreted an abundant purulent yellow exudate which contained many bacilli. Pleurisy with a small effusion developed. A Jacobeus operation, modified according to Souza Mendes's technic, failed to close the cavity, because one adhesion which kept it open could not be removed. While planning to place the patient on Sauerbruch's diet, it was decided first to give him injections into the cavity of the copper salt solution. When the first injection was given, thirty days had elapsed since the operation and at this time, the roentgen examination showed that the cavity was still open. Another injection was given ten days after the first one. The second roentgen examination, forty-eight hours after the second injection, proved that the cavity had almost entirely disappeared. The patient was then given intravenous injections of the copper salt solution. The sputum was greatly modified by the treatment. It presented a white mucous aspect and had no bacilli. One month later the sputum continued to be free of bacilli, but the third roentgenogram taken at this time showed a slight reopening of the cavern. The return to the administration of injections of copper salt solution into the cavity was followed by the definite closure of the cavity.

The importance of the treatment is emphasized by the following facts: (1) All the patients with cavitation in pulmonary tuberculosis who were treated by this method showed a modification of the sputum (both in its aspect as well as in being free of tubercle bacilli). (2) The intracavitary injections of certain drugs (in the speaker's cases, copper salt solution), may cause closure of the cavity. Similar results have been obtained in cases of cavitation only by resorting to an extrapleural thoracoplasty, a serious and sometimes a mutilating operation. The technic of the injection treatment is simple, and it may be given to ambulatory patients. The speaker's assistant physicians have given about sixty injections to about twenty-three tuberculous patients.

The good results obtained with intravenous injections of copper morrhuate solutions in the treatment of tuberculous abscess of the lung, as well as the harmlessness of the drug when used in proper dosage, indicated its preference to other drugs in the treatment of cavitation in pulmonary tuberculosis. In the clinic of which the speaker is the head, a large number of patients received intravenous injections of 10 to 20 cc. each of copper morrhuate solution every other day as treatment for cavitation in pulmonary tuberculosis, always with good results. The fact that some of the patients had nephritis indicated the advisability of giving the injections directly into the lung cavities. This also was done with good results.

Dr. M. de Abreu spoke before the Academia de Medicina, as a continuation of Dr. MacDowell's lecture. He illustrated his lecture with roentgen films to explain a method for the transparietal puncture of cavities of the tuberculous lung, according to a technic developed in collaboration with Dr. Quaresma. By means of the combined views of the lung, the position of the cavity is determined. The direction of the puncture is determined in accordance with the projection of the intercostal spaces, the intrathoracic organs and the localization of the cavity as appearing in the roentgenogram, and under the guidance of radioscopy the needle is carried up to the point mathematically determined.

Marriages

William M. Parker, De Valls Bluff, Ark., to Miss Georgia Eloise Zearing at Glen Ellyn, Ill., August 4.

Arthur Neal Owens, Baltimore, to Miss Georgia May Little of Atlanta, Ga., September 30.

Timothy Lehmann, Jr., to Miss Marie Alice Williams, both of Columbus, Ohio, June 28.

Eldon L. Watson, Madison, Wis., to Miss Mildred Reynolds of Shorewood, July 3.

Walter Bauer, Boston, to Miss Margaret Zeller of Still River, Mass., September 12.

William R. Rogers to Miss Dorothy McCann, both of Cincinnati, June 25.

Leland F. Carter, Detroit, to Miss Mary Brown of Cleveland, September 4.

Frank E. Drew to Miss Gertrude Fellman, both of Milwaukee, June 27.

Kenneth Phillips to Miss Shirley LeMon, both of Miami, Fla., July 3.

Deaths

George Thomson Elliot, East Otisfield, Maine; University of Louisiana Medical Department, New Orleans, 1881; professor of dermatology in the New York Post-Graduate Medical School, 1896-1898; professor, 1898-1920, and later emeritus professor of clinical medicine in the department of dermatology, Cornell University Medical College, New York; consulting dermatologist to St. Luke's, Columbus, New York Lying-In, New York Skin and Cancer hospitals and the New York Eye and Ear Infirmary, New York; aged 75; died, September 14, of heart disease.

Stewart Le Roy McCurdy, Pittsburgh; Columbus Medical College, 1881; member of the American College of Surgeons; professor of anatomy and oral surgery, dental department, University of Pittsburgh since 1896, and assistant professor of surgery in the school of medicine of the University of Pittsburgh; oral and plastic surgeon to the Presbyterian Hospital; orthopedic surgeon to the Columbia Hospital, Wilkinsburg; author of "Manual of Orthopedic Surgery" and "Oral Surgery"; aged 72; died, September 8, at his home in Wilkinsburg, Pa.

George Street McReynolds ⊕ Temple, Texas; College of Physicians and Surgeons, Baltimore, 1898; member of the American Academy of Ophthalmology and Oto-Laryngology, American College of Surgeons and the American Bronchoscopic Society; on the staff of the King's Daughters' Clinic and Hospital; aged 59; died, August 26.

Howe Bayard Langsdale, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1908; member of the Illinois State Medical Society; on the staff of the Ravenswood Hospital; aged 45; died, September 23, in St. Luke's Hospital, of acute pyelonephritis following nephrectomy for removal of stone in the left ureter.

Henry Yost Slaton, Greenville, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the Kentucky State Medical Association; served during the Spanish-American and World wars; aged 59; died, September 6, in the Jennie Stuart Hospital, Hopkinsville.

John King Gamble, Cleveland; Western Reserve University Medical Department, Cleveland, 1907; aged 50; surgeon in charge and superintendent of the Carnegie Avenue Hospital, where he died, August 21, of arteriosclerosis, chronic nephritis, diabetes mellitus and angina pectoris.

William David Pemberton, Concord, N. C.; University of Maryland School of Medicine, Baltimore, 1887; member of the Medical Society of the State of North Carolina; past president of the Cabarrus County Medical Society; aged 72; died, September 9, of chronic nephritis.

Harlow L. D. Woodruff, Ellsworth, Maine; Medical Department of the University of the City of New York, 1870; member of the Maine Medical Association; for eighteen years member of the board of health; aged 85; died, August 16, of heart disease and arteriosclerosis.

Theron Hart Slaughter, Long Beach, Calif.; Washington University School of Medicine, St. Louis, 1912; member of the California Medical Association; on the staff of the Long Beach Community Hospital; aged 43; was killed, September 16, in an automobile accident.

Clarence S. Molseed, Omaha; John A. Creighton Medical College, Omaha, 1915; associate professor of surgery at his alma mater; served during the World War; on the staffs of St. Catherine's and St. Joseph's hospitals; aged 40; died, September 3, of heart disease.

Norfleet Lynn Carney, Clarksville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1879; University of Nashville Medical Department, 1880; formerly mayor and member of the city council; aged 77; died, August 9, of arteriosclerosis.

James Asa Adair, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1919; member of the Medical Society of Delaware; aged 35; on the staff of the Homeopathic Hospital, where he died, August 21, of miliary tuberculosis.

Walter Legier Coolidge, Louisville, Ky.; Louisville Medical College, 1904; member of the Kentucky State Medical Association; served during the World War; aged 49; died, September 3, of cardiovascular renal degeneration and emphysema.

Edward Thomas McGuire, Mead, Neb.; Lincoln Medical College of Cotner University, 1908; president of the Nebraska

State Board of Medical Examiners; aged 61; died, July 26, in a hospital at Omaha, of gangrenous appendicitis and diabetes mellitus.

John Joseph McKew, New York; Bellevue Hospital Medical College, New York, 1883; member of the Medical Society of the State of New York; aged 71; died, September 7, in the Presbyterian Hospital, of hypertrophy of the prostate and heart disease.

John Watson Shaw ⊕ Washington, D. C.; University of Pennsylvania School of Medicine, Philadelphia, 1890; aged 65; died, September 4, in the Garfield Memorial Hospital, of malignant tumor of the left kidney with metastases to the liver.

William Gregg Gill ⊕ Newton, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1910; councilor of the Sixth District Medical Society; aged 49; died, August 20, in a hospital at New Orleans, of undulant fever.

Anthony Pennisi ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1925; on the staff of the Cumberland Hospital; aged 30; died, September 5, of injuries received when the automobile in which he was driving was struck by a train.

George Washington Bagley, Jr., Oteen, N. C.; Atlanta Medical College, 1915; member of the Medical Association of Georgia; served during the World War; aged 40; died, August 29, in the United States Veterans' Hospital number 60.

Conrad Piser Kornreich ⊕ New York; Medical Department of Columbia College, New York, 1895; on the staff of the Lenox Hill Hospital; aged 57; was killed, August 17, when the automobile in which he was driving overturned.

William R. Googe, Abbeville, Ga.; Atlanta Medical College, 1890; member of the Medical Association of Georgia; formerly mayor, member of the county school board and city council; aged 64; died, August 20, of heart disease.

George Dunlap Bennett, Mountain View, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1879; aged 76; died, August 12, in the University of California Hospital, San Francisco, of carcinoma of the pancreas.

Thomas Townsend Gaunt, New York; Medical Department of Columbia College, New York, 1881; aged 74; died, September 2, at his summer home in White Sulphur Springs, W. Va., of myocarditis and angina pectoris.

Charles Roberson, Greensboro, N. C.; Long Island College Hospital, Brooklyn, 1897; member of the Medical Society of the State of North Carolina; aged 59; died in September of coronary occlusion and arteriosclerosis.

Elmer E. Pownall, Richboro, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1886; member of the Medical Society of the State of Pennsylvania; aged 69; died, August 10, of carcinoma of the stomach.

Charles Leopold G. Hoening, Hoboken, N. J.; University of Bonn, Germany, 1885; formerly on the staff of St. Mary Hospital; aged 69; died suddenly, September 4, while spending his vacation in Rangely Lakes, Maine.

William Caldwell Perrow, Chicago; Chattanooga (Tenn.) Medical College, 1909; aged 45; was found dead in his office, September 15, of hemorrhage following a self-inflicted laceration of the neck with a razor blade.

William Harrah Watson, Chebanse, Ill.; Rush Medical College, Chicago, 1875; Civil War veteran; aged 87; died, September 5, in the Illinois Central Hospital, Chicago, of acute urinary retention and uremia.

Zachary Taylor Cunningham, Princeton, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1880; past president of the Caldwell County Medical Society; aged 82; died, August 29, of pneumonia.

Louis Kahn ⊕ Columbus, Ohio; Starling Medical College, Columbus, 1888; formerly president of the city board of health; aged 67; died, September 6, in the Mount Carmel Hospital, of abdominal carcinomatosis.

John Carter Hanna ⊕ Akron, Ohio; Kentucky School of Medicine, Louisville, 1893; aged 67; died, August 12, in the Cleveland Clinic Hospital, of carcinoma of the sigmoid with metastases to the omentum.

Franklin Powel, Chester, Pa.; Hahnemann Medical College of Philadelphia, 1881; on the staff of the J. Lewis Crozer Home and Hospital; aged 82; died, August 31, while on a vacation in Newark, N. J.

Clarence Wilbur Leigh ⊕ Evanston, Ill.; Rush Medical College, Chicago, 1883; veteran of the Spanish-American and World wars; aged 71; died, September 10, in Constantine, Mich., of myocarditis.

Wilbur Smiley Wallace, Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1901; served during the World War; aged 55; died, August 28, of lateral sclerosis of the spinal cord.

George Henry Wallace ⊕ Pampa, Texas; Barnes Medical College, St. Louis, 1904; served during the World War; aged 53; died, August 14, of complications, following an operation for appendicitis.

Joel Y. Hume, Auxvasse, Mo.; St. Louis Medical College, 1879; member of the Missouri State Medical Association; aged 79; died, August 22, in a hospital at Fulton, of cardiac insufficiency.

Charles N. Miller, Oakland, Calif.; California Medical College, San Francisco, 1888; Civil War veteran; aged 86; died, August 8, of chronic myocarditis and chronic interstitial nephritis.

Ray Coman Sink, Winston-Salem, N. C.; Long Island College Hospital, Brooklyn, 1929; aged 30; was drowned, August 20, at Virginia Beach, Va., while trying to rescue a girl.

Schuyler H. Dech, Easton, Pa.; Eclectic Medical Institute, Cincinnati, 1901; member of the Medical Society of the State of Pennsylvania; aged 52; died, June 4, in the Easton Hospital.

George W. Davis, Lockland, Ohio; Medical College of Ohio, Cincinnati, 1888; member of the Ohio State Medical Association; aged 73; died, June 24, of carcinoma of the prostate.

Emil Max Senger ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1924; aged 33; died, August 27, in Saranac Lake, N. Y., of pulmonary tuberculosis.

John A. Drouin, St. Johnsbury, Vt.; Baltimore University School of Medicine, 1902; member of the Vermont State Medical Society; aged 53; died, August 11, of angina pectoris.

William Cooper Stubbs, Celina, Ohio; Pulte Medical College, Cincinnati, 1888; member of the Ohio State Medical Association; aged 69; died, September 7, of heart disease.

Edward August Pape ⊕ Indianapolis; State College of Physicians and Surgeons, Indianapolis, 1907; aged 50; died, September 7, in Chillicothe, Ill., of cerebral hemorrhage.

William Francis Beamish, Port Hope, Ont., Canada; University of Toronto Faculty of Medicine, 1920; aged 46; died, July 26, in the Toronto (Ont.) General Hospital.

Robert E. Donahue, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1907; aged 47; died, September 5, in the Knoxville General Hospital, of malignant endocarditis.

Lawrence Branch Young, Rolesville, N. C.; College of Physicians and Surgeons, Baltimore, 1886; aged 72; died, August 14, of chronic interstitial nephritis and uremia.

Charles Harrod Vinton ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1868; aged 86; died, August 21, in Ogunquit, Maine, of prostatitis.

Henry Scudder Drake, Middleboro, Mass.; Harvard University Medical School, Boston, 1881; aged 71; died, August 14, of arteriosclerosis and hemorrhagic nephritis.

Elmer A. Pierce, Ocracoke, N. C.; Hahnemann Medical College and Hospital, Chicago, 1891; aged 69; died, August 21, in a hospital at Washington, of pneumonia.

Cooper Dave Kunkel, Pulaski, Va.; Bellevue Hospital Medical College, New York, 1873; member of the Medical Society of Virginia; aged 83; died, June 11.

John James Thomas, Youngstown, Ohio; Jefferson Medical College of Philadelphia, 1881; aged 79; died, September 1, of coronary and cerebral arteriosclerosis.

Melancthon R. Waggoner, De Witt, Iowa; Hahnemann Medical College and Hospital, Chicago, 1896; aged 57; died suddenly, September 9, of heart disease.

Charles S. Walker ⊕ Plymouth, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1896; aged 65; died, August 21, of aortic insufficiency.

Guy J. Wormley, Sandwich, Ill.; Rush Medical College, Chicago, 1893; member of the Illinois State Medical Society; aged 59; died, August 30, of uremia.

James Priestly Austin, Windsor, Ont., Canada; University of Toronto Faculty of Medicine, 1913; aged 43; died, suddenly, September 4, of heart disease.

George P. Chambers, Savannah, Tenn. (licensed, Tennessee, 1902); veteran of the Spanish-American War; aged 52; died, September 3, of heart disease.

Charles Augustus Fletcher, Kalamazoo, Mich.; University of Michigan Medical School, Ann Arbor, 1888; aged 70; died, September 4, of heart disease.

James Copeland, Tupelo, Miss.; Medical Department, University of Tennessee, 1890; aged 72; died, August 2, of myocarditis and dilatation of the heart.

Charles Henry Schwaemmle, Mobile, Ala.; Jefferson Medical College of Philadelphia, 1890; aged 62; died, August 30, in Spring Hill, of diabetes mellitus.

Chesley C. Uhls, White City, Kan.; Missouri Medical College, St. Louis, 1887; aged 69; died, August 29, of cerebral hemorrhage and chronic nephritis.

Levinus Abraham Lansing ⊕ Wakefield, Neb.; University of Buffalo School of Medicine, 1897; aged 69; died, August 7, of pneumonia and acute nephritis.

Michael Keenan, Troy, N. Y.; Albany Medical College, 1888; aged 70; died, August 24, of myocarditis, pulmonary edema and interstitial nephritis.

William Robert Stewart, Indianapolis; Hahnemann Medical College and Hospital, Chicago, 1890; aged 66; died, August 30, of carcinoma of the colon.

Charles Edgar Taylor ⊕ Irwin, Pa.; Medical Department of the University of the City of New York, 1882; aged 73; died, August 20, of carcinoma.

William J. Campbell, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1871; aged 81; died, September 4, of heart disease.

James Henry Morgan, San Antonio, Texas; University Medical College of Kansas City, 1904; aged 57; died, May 24, of asthma and heart disease.

Stuart Morton Stuber, Flushing, Mich.; University of Michigan Medical School, Ann Arbor, 1930; aged 29; died, September 8, of pneumonia.

Alfred R. Haas ⊕ Ellinwood, Kan.; University Medical College of Kansas City, 1901; aged 60; died, August 19, in Great Bend, of septicemia.

Wellington Henry Holtzman, Vernon, Mich.; Medical College of Ohio, Cincinnati, 1878; aged 82; died, August 20, of chronic myocarditis.

James Eakins, Alpena, Mich.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1871; aged 84; died, August 26, of senility.

Penn Gaskell Skillern, Sr., Sharon Hill, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1877; aged 74; died, July 25.

Peter Joor ⊕ Maxwell, Iowa; State University of Iowa College of Medicine, Iowa City, 1881; aged 73; died, August 19, of arteriosclerosis.

Anna M. Fisher, Minneapolis; Detroit Homeopathic Medical College, 1873; aged 90; died, August 30, of arteriosclerosis and coronary disease.

Charles F. Lahn, Appleton, Wis. (licensed, Wisconsin, under the Act of 1899); aged 66; died, September 6, of carbolic acid poisoning.

Manuel Nash Keys, Detroit; Detroit College of Medicine and Surgery, 1924; aged 31; died, August 12, of splenomyelogenous leukemia.

James A. Sims, Pine Village, Ind.; Medical College of Indiana, Indianapolis, 1879; aged 81; died, August 25, of cerebral hemorrhage.

John Van Ess, Newark, N. J.; Medico-Chirurgical College of Philadelphia, 1903; aged 48; died suddenly, September 2, of heart disease.

Charles E. Dukenfield, McMinnville, Ore.; University of Buffalo School of Medicine, 1882; aged 80; died, August 14, of pneumonia.

Stuart B. MacDiarmid ⊕ Omaha; John A. Creighton Medical College, Omaha, 1904; aged 50; died, August 25, of heart disease.

Welcome B. Sprinkle, Oaktown, Ind.; Louisville (Ky.) Medical College, 1876; aged 76; died, September 1, of cerebral hemorrhage.

Patrick J. Scallon, Port Angeles, Wash.; Michigan College of Medicine, Detroit, 1885; aged 69; died, July 16, of hemiplegia.

Walter J. Wyant, Dayton, Ohio; Columbus Medical College, 1889; aged 65; died, August 5, in the Dayton State Hospital.

Robert R. Williams, Manning, Iowa; Rush Medical College, Chicago, 1876; formerly county coroner; aged 82; died, June 8.

Robert James G. O'Connell, San Francisco; Cooper Medical College, San Francisco, 1889; aged 64; died, June 12.

Elias Lincoln Shope, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1889; aged 64; died, June 15.

Wilbur J. Sheldon, Los Angeles; Pulte Medical College, Cincinnati, 1893; aged 65; died, June 13.

Correspondence

PROTECTION OF STUDENTS AND NURSES AGAINST TUBERCULOSIS

To the Editor:—In The Journal, August 29, Dr. Fishberg asks some questions concerning the article entitled "Recent Facts on Transmission of Tuberculosis," published in The Journal, August 1. It appears that Dr. Fishberg's chief reason for asking these questions is his fear that if the facts concerning the present situation become known to the public it will become more difficult to recruit nursing staffs for tuberculosis hospitals.

The truth is, the paper did not apply solely to institutions for the tuberculous but to all hospitals where tuberculosis is being spread from patients to students of nursing and medicine. The hospital with a contagious technic so efficient that such spread is prevented, whether it be for the tuberculous or a general hospital, is exempt. Available evidence, however, leads me to believe that these are scarce. The chief reason for publishing the article at this time was that the facts must be accepted by the medical and nursing professions and steps taken to prevent further disaster and discredit to these professions. The public has a perfect right to know the facts. What can be worse for parents than to send their girls and boys to schools of medicine and nursing only to receive them back into the home after several years of training or perhaps soon after graduation as invalids, all because the proper measures were not taken to protect them?

Dr. Fishberg calls attention to an analysis of the morbidity of the personnel of the Brompton Hospital in London, which, in the middle of the last century, was cited widely as evidence that tuberculosis is not a transmissible disease. The first report from this hospital was in 1882, the year Koch discovered the tubercle bacillus. It is well known that up to that time two schools existed, one clinging to the view of the hereditary nature and the other to the contagious nature of the disease. One should not overlook the fact that Williams' paper, published in 1882, giving the reports of the Brompton Hospital, was attacked by no less authorities than Newsholme and Cornet. Williams again reported on the Brompton Hospital experiences in 1909 (*Brit. M. J.* **2:** 433). Dr. Fishberg has also called attention to the work of Saugman, published approximately a quarter of a century ago. It seems as far fetched to quote from observations made twenty-five and fifty years ago when our knowledge of the transmission of tuberculosis was meager as it would be to quote from the excellent paper concerning malarial fever published in the *Quarterly Review* in 1824.

We have entered on a new day in tuberculosis work. Two of our most powerful weapons, the cutaneous tuberculin test and the x-ray film, did not enter into the work of Williams and Saugman as they do now. Neither was known at the time Williams wrote his first paper. Who knows how many of the individuals observed by these workers entered uninfected but became infected during the course of their work? Who knows how many of them because of their exposure to tuberculosis developed lesions which did not give the marked clinical symptoms and signs necessary for diagnosis in those days? Who knows how many of them developed lesions of a very chronic nature, which would at some time later in life, perhaps in the period of senility, discharge tubercle bacilli and make them dangerous to those with whom they associate? Such workers were working in the light of the best knowledge of their day but the light has been intensified. The difference is as great between then and now as that observed between a low power and a high power objective when studying tissue under the microscope.

Dr. Fishberg says, "I know of no evidence that the incidence of tuberculosis in medical schools is higher than that of other young men and women." As students of nursing are also being considered, I would like to cite the splendid paper by Whitney, published in the *American Journal of Nursing* in August, 1928, in which she pointed out that the incidence of tuberculosis among nurses in training is one-third higher than among women of the same ages in the general population. I would also like to call attention to such articles as those by Britton and Bollman (Transactions of the twenty-fifth annual meeting of the National Tuberculosis Association) and Shipman and Davis (*Am. J. Nursing,* August, 1928). The articles by Heimbeck (*Arch. Int. Med.,* 1928 and 1931) and by Geer (*ibid.,* to be published) establish facts which seem almost unbelievable. In The Journal June 13, Opie, Landis, McPhedran and Hetherington report an alarming incidence of grave tuberculous lesions among medical students presumed to be in good health. Thus there is an abundance of evidence to prove conclusively that the incidence of tuberculin reactors and the tuberculosis morbidity among students of nursing and medicine is far too high.

Dr. Fishberg says: "As consulting physician to a theological seminary, I have seen during the past three years three cases of pleurisy and two cases of active pulmonary tuberculosis among the 200 students in that institution. Would I be justified in appealing 'with a view to stopping the onslaught of the disease among the young members' of the clerical profession?" He is not only justified but it is his duty to seek out the sources of the tubercle bacilli that have caused his five students to fall ill from tuberculosis. The sources may be in the home, they may be in the faculty, and they may be among the student body. If he has not applied the tuberculin test and made roentgen examination of every student, he may find a much higher incidence when he does so.

I have enough confidence in the courage of the students of medicine and nursing to believe that those schools and hospitals offering adequate protection against tuberculosis will not suffer a dearth of students, but that those who fail to protect their students will, as time passes, find their numbers dwindling as they deserve.

J. Arthur Myers, M.D., Minneapolis.

POLYMORPHONUCLEAR CELLS AND HISTIOCYTES—THEIR ACTION IN THE PATHOLOGIC PROCESS

To the Editor:—I have just read the editorial comment on "The Histiocyte in Medicine" (The Journal, August 22). It states that "Dameshek refers to the reticulo-endothelial system as a presumptive secondary line of defense against bacteria, the first line of defense being the polymorphonuclear cells."

In a recent book (Les poisons du bacille tuberculeux et les réactions cellulaires et humorales dans la tuberculose) I have reported some personal experiments in which I showed, with R. F. Le Guyon, according to the work of Professor Borrel, that the introduction in the peritoneal cavity of guinea-pigs of an emulsion of Koch bacilli is followed by a local invasion of polymorphonuclear cells. These cells immediately attack many bacilli. Twenty-four hours after the peritoneal injection of tubercle bacilli the histiocytes appear and attack many polymorphonuclear cells, which break down because of the action of the Koch bacilli which they have attacked.

The histiocytes make by their fusion gigantic cells, including bacilli (thirty and forty-eight hours after the peritoneal injection). Polymorphonuclear cells and histiocytes phagocytize the Koch bacilli, but it is only the histiocytes, which are active for the defense, fixing the bacilli. In some cases they digest and destroy them (action of the clasmatocytes). The phagocytosis of Koch bacilli by the polymorphonuclear cells has by no means a useful effect. On the contrary, polymorphonuclear cells are destroyed by the Koch bacilli (pyknotic degeneration), and also the polymorphonuclear cells, being taken in the circulating stream, play a great rôle in the dispersion of Koch bacilli in the organism.

The action of polymorphonuclear cells and of histiocytes is therefore in many cases fundamentally different.

The polymorphonuclear cells are the agents of "circulating bacteriopexia."

The histiocytes are the agents of "fixed bacteriopexia."

The "circulating bacteriopexia," first stage of reaction of the organism toward the bacteria, is in many cases (especially when the infectious agents are acid-fast bacilli, on which the polymorphonuclear cells have no digestive action) not at all a process of defense. "Inflammation has in no manner a good effect in tuberculosis." And it is therefore impossible in many cases to consider the polymorphonuclear reaction as a first line of defense.

I cannot develop that statement here but I may say that it is a consequence of many personal experiments, and of the experiments of many other workers in laboratories in the United States and in France.

And I must say also that in many diseases, in most of them perhaps, the cure, the restitution to health, is not associated with bacterial destruction (Noël Fiessinger). Bacterial destruction, or cellular destruction or both (for example, polymorphonuclear destruction by Koch bacilli and Koch bacillus destruction in the organism) may have a bad influence, because they liberate toxic fractions or fractions which may give severe allergic reactions.

Jean Albert-Weil, M.D.,
Béziers, Hérault, France.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE INTERNATIONAL MEDICO-LEGAL ASSOCIATION

To the Editor.—I have had some correspondence from the International Medico-Legal Association, 330 South Wells Street, Chicago, soliciting membership in this organization. I should like to know if this is a recognized organization, and something of the personnel of same. So far, I have not been able to get very much information in regard to this, and I want to know something about it before I accept membership in it.

M.D., Illinois.

Answer.—The International Medico-Legal Association was chartered under the not-for-profit act of Illinois, Aug. 28, 1931, and the articles of incorporation were recorded in the office of the Recorder of Deeds of Cook County, September 28. The incorporators, who apparently are also the officers and directors, are Drs. Bernard P. Conway, Charles K. Barnes and Charles E. M. Fischer. Dr. Conway, who is the president, was graduated by the Chicago College of Medicine and Surgery in 1914 and licensed to practice in Illinois the same year. He is a member of the Chicago Medical Society but has not qualified as a Fellow of the American Medical Association. According to the Chicago "Medical Blue Book," Dr. Conway is president of the Chicago Hospital. This establishment is one that the American Medical Association does not include in its register. Dr. Charles K. Barnes, vice president and treasurer, was graduated by the Medical School of Northwestern University in 1925 and licensed to practice in Illinois the same year. He, too, is a member of the Chicago Medical Society but not a Fellow of the American Medical Association. He is described on the letterheads of the International Medico-Legal Association as Chief-of-Staff of the Auburn Park Hospital, which, also, is an establishment that the American Medical Association does not include in its register. Dr. Charles E. M. Fischer holds a diploma from the Chicago College of Physicians and Surgeons, 1907, and a license to practice medicine in Illinois of the same year. His specialty is clinical pathology. Dr. Fischer is a member of the Chicago Medical Society and, through that, has qualified as a Fellow of the American Medical Association. Dr. Fischer operates certain clinical laboratories, known as the Fischer Laboratories, Inc. These laboratories the American Medical Association has declined to register as acceptable clinical laboratories. In the Chicago "Medical Blue Book," Dr. Fischer is described as an "honorary member of the Chicago Association of Detective Sergeants and member Criminology Committee of same." The articles of incorporation of the International Medico-

Legal Association are silent as to the qualifications of members and the amount to be paid as dues. Ordinarily, the qualifications, rights and obligations of members, the amount payable as dues, and times and places of meetings might be learned from the by-laws, but a request to the secretary of the association for a copy of them has elicited no response. Persons are being elected by the directors, or under their supervision, as Fellows, Honorary Fellows, and Members of an Honorary Executive Board, without the knowledge or consent of the persons so elected. After election, certificates of fellowship or honorary fellowship are sent, and those who are elected as Fellows, or some of them, are requested to send $10 to the secretary of the association. Those who are elected as Honorary Fellows are apparently not being solicited for financial support. No evidence has been found, other than its name, to give this organization an international character. The purposes of the association as stated in its articles of incorporation are "to associate members of the Medical and Legal professions for the co-operation of all such members in a study of the problems of each" and "to maintain a research and information bureau for our members to distribute among our members data relative to medicolegal subjects." It would seem to be the part of wisdom for persons who are invited to identify themselves with this organization, or any other organization without established standing, to demand, before they accept such invitations, copies of its by-laws or specific information as to how and when such by-laws are to be promulgated and what voice individual members are to have in framing them, for the by-laws go a long way toward determining the rights, duties and liabilities incident to membership.

TEMPORARY STERILITY PRODUCED BY THE ROENTGEN RAY

To the Editor:—A woman, aged 31, married, with no children, developed last March, in the left lung, a condition which I believe to be protracted unilateral bronchopneumonia of lobar distribution. She still has slight fever, pain in the chest at the left base, no loss in weight, no cough, and she tires easily. Roentgenograms are negative. At the left base one hears showers of loud, moist râles. She has also severe dysmenorrhea. She is from ten days to two weeks late with each period and during this time has higher fever and increased pain in the chest. I have taken her to an excellent gynecologist, who advised putting the pelvis at rest for from four to six months by a sterilizing dose of x-rays. The patient fears this, as she wants children. She has consulted two roentgenologists. One assured her that there was no danger but the other would promise her nothing. I am sure that if her periods could be stopped for a while she would recover from the chest condition. Is there any danger of permanent damage to the ovaries if the procedure is carried out by one who has had experience in this work? Can the dose of x-rays be regulated so as to give within certain limits a period of rest of three, six or twelve months as desired? Have there been any bad results? Is there danger of blastophthoria? I have no knowledge of this "treatment" and do not know how to advise my patient. Please omit name.

M.D., Michigan.

Answer.—There are many gynecologists and roentgenologists who maintain that the use of the roentgen rays to produce temporary amenorrhea may sometimes result in complete cessation of menstruation and sterility; but there are at least a few roentgenologists who have had sufficient experience with irradiation of the ovaries to assert that the effect of the x-rays on the gonads can be controlled with a great degree of certainty. These roentgenologists have employed the x-rays not only for the purpose of producing temporary amenorrhea but also for stimulating ovulation and overcoming amenorrhea and sterility. Success in the latter cases is due to the stimulating effect which small doses of x-rays have on the ovaries. Excellent results have been seen in both classes of cases. In young women it is usually difficult to produce permanent amenorrhea even with large doses. The nearer the menopause, the more likely is cessation of menstruation to be permanent. It not infrequently happens that pregnancy follows an attempt to produce sterility by means of the x-rays. When temporary sterility is produced by the x-rays, the ova which are not damaged mature after the effects of the x-rays have worn off. These ova, when fertilized, nearly always result in the birth of a healthy child. Occasionally for the first few months after the use of x-rays to produce sterility, ovulation persists. If an ovum is fertilized during this time, there is a possibility that it may not be normal. Hence contraceptive measures should be taken for a few months after the roentgen treatments. However, the ova which ripen after the effects of the x-rays have worn off, that is, after the amenorrhea ceases, are practically always normal and, if they are fertilized, normal offspring are usually born. A few gynecologists maintain that ova which are fertilized after the cessation of a roentgen castration not infrequently result in monsters, but most gynecologists and radiologists maintain that there is no definite connection between the roentgen castration and the birth of monsters. On the other hand there is unity of opinion that prolonged irradiation for therapeutic purposes in the early months of an existing pregnancy frequently results in the birth of a deformed child. Since not all the factors involved in the action of the x-rays on the ovaries are known, it is best to be cautious and have the treatment given by a skilled roentgenologist who has had experience with temporary roentgen castration.

INTERCOSTAL NEURITIS

To the Editor:—A man, aged 59, has intercostal neuritis of three years' standing. I had the nerves severed ten months after the onset, which gave relief for two months. Since then the pain has grown worse and requires morphine at times. The patient is in perfect health otherwise. All foci of infection have been removed. Is there anything that will relieve this pain, except opium? I have tried all the usual coal tar and barbital preparations. He has been advised to have a laminectomy to sever the sensory roots. Please advise.

M.D., Arkansas.

Answer.—Before surgery is again attempted, the pain-relieving possibility of high voltage roentgen therapy should be explored. It may be applied over the spine at the point of emergence of the affected nerve, or over the entire affected region, or to both areas, one fifth of a filtered erythema dose being given every week for three or four successive weeks. The analgesic value of perineural or intraneural injections of from 5 to 10 cc. of sterile physiologic sodium chloride solution with 0.5 per cent procaine hydrochloride should next be determined. The therapeutic result of such injections does not so much depend on the local anesthetic, the transient effect of which is chiefly of value to lessen the pain of the procedure itself, as on the local "alterative" action of the artificial edema and consecutive hyperemia. Possibly the mechanical loosening of perineural adhesions may also be of importance in the permanent effects secured in some cases by this treatment. Should surgery be resorted to, extraction of the nerve will probably render laminectomy unnecessary. An incision is made parallel to the vertebral column and about 5 cm. from the median line. After the intercostal spaces have been exposed and the intercostal muscles divided, the nerve is separated from the blood vessels, which lie above. The nerve should then be taken out for a considerable distance in both directions.

HYPERSENSITIVENESS TO TOXOID

To the Editor:—Before using diphtheria toxoid for immunizing older children and adults, it is recommended that a small amount of dilute toxoid be injected intradermally as a test for protein reaction. As the Schick test is the same procedure with dilute toxin, why are the results interpreted differently?

Walter J. Robbins, M.D., New Britain, Conn.

Answer.—Diphtheria toxin and toxoid are not the same substance and individuals do not react to the two in the same manner. Some have advocated the intracutaneous injection of small amounts of the toxoid solution as a test for hypersensitiveness, but it is not generally insisted on. The control test, as carried out in the Schick procedure, serves as an indication of susceptibility to proteins in the toxin solution and may be used as a substitute for the injection of dilute toxoid solution in determining susceptibility of individuals to proteins in the toxoid solution.

BURNS DUE TO SOLUTION IN ELECTROLYSIS TANK

To the Editor:—I do the industrial accident work for a local steel mill where the following formula is used in an electrolysis tank: To each gallon of water there is added 6 ounces of copper cyanide, 8 ounces of sodium cyanide and 1 ounce of sodium sulphate. The men do not touch the solution, but they frequently get a few drops on their arms. Deep burns are caused by it. What is the best solution to prevent the burns and what is the best treatment for burns? Please omit name.

M.D., Ohio.

Answer.—This problem is not easily solved. It is somewhat unpractical to expect workmen to wear long-sleeved, impervious gloves regularly. Two suggestions, however, have recently been made that offer some promise in the way of prevention:

1. Sulphur soaps, applied as a lather to the hands and forearms, are said to change over the irritating cyanides to the nonirritating sulphocyanates. The sponsors of this form of medicament recommend the washing up of the hands and forearms three or four times daily, allowing some of the soapy material to dry on the skin. This sulphur is said to act as a preventive measure and also to constitute acceptable treatment if cyanide burns take place. In a few large industries where cyanide plating is done on a large scale, dermatoses from this cause have largely been eliminated. The evidence in support of these claims is not yet well established.

2. The second preventive measure is found in the use of alkaline soap, which is superfatted. The spreading of this superfatted soap, which may be applied like any ointment, is followed by a drying down to a firmer layer on the skin than is true for ordinary ointments. The action of this superfatted soap is largely mechanical, serving as a protective layer between the skin and the offending chemical. It may be necessary to apply this soap more than once during the usual work period of eight hours.

Rarely, the skins of workmen are irritated by the sulphur in the colloidal sulphur soap, and the soap itself is the superfatted preparation described.

PRESENCE OF SPERMATOZOA AFTER LIGATION OF VAS

To the Editor.—I have a patient who had both of his vasa deferentia ligated and cut during the last week of May, 1931. Once a week during June, I sent his seminal fluid, obtained by means of a condom during intercourse, to the Rhode Island State Laboratory. Each specimen contained a large number of spermatozoa of normal shape, though there were many less in the specimen taken during the last week of June. The persistent presence of these spermatozoa was a severe disappointment to the patient. How many ejaculations must occur after the Steinach operation before spermatozoa disappear? Please omit name.

M.D., Rhode Island.

Answer.—No reliable references are available as to the limit of time within which spermatozoa may appear in the ejaculate following ligation of the cords. The possibility also has to be considered that the interruption of continuity of a cord may not be complete. The mere presence of spermatozoa does not indicate the probability of fecundation. Lack of motility and morphologic abnormalities, such as splitting of the heads and breaking of the tails, also militate against the probability of fecundation.

POSTOPERATIVE HYPERTHYROIDISM

To the Editor:—A man, aged 51, was operated on at the Mayo Clinic ten years ago for exophthalmic goiter. Six weeks ago there was onset of palpitation, loss of weight, diarrhea and sugar in the urine. His basal metabolism rate is (Benedict) plus 29 per cent and (Du Bois) plus 23 per cent. What is the latest idea concerning iodine treatment in these cases? What chance have I to return the remnant of the gland to normal with compound solution of iodine and to hold it there? Also, will you inform me of the latest ideas in roentgen administration to the remnant of the gland. Are there any other treatments except operation that hold forth some chance of success?

C. C. Curtiss, M.D., Syracuse, N. Y.

Answer.—It is generally accepted that the iodine treatment of these cases merely results in temporary improvement and is liable to be followed by ultimate aggravation of the condition. Roentgen therapy offers a good chance for improvement and even cure, provided the glandular hypertrophy is radiosensitive, as it is likely to be in recently developing cases, as the one under discussion seems to be. To secure permanent results, it is also necessary to investigate the cause of the hypertrophy. This may be found in focal infection, as of the teeth or the tonsils. To the patient "intolerable" social conditions are frequently the exciting cause, which must be remedied by either removing what is intolerable to the patient or rendering the individual more tolerant by appropriate psychotherapy.

HEADACHE RELIEVED BY INTRANASAL APPLICATION

To the Editor:—Is there any diagnostic significance when headache is relieved by the nasal application of cocaine (to the middle meatus)? For example, a patient is being examined in the office (complaining of headache) and during the routine examination the nasal mucosa is shrunk with epinephrine and cocaine. The headache is relieved. Would this throw the balance of evidence to the sinus as the etiologic factor? Please omit name.

M.D., West Virginia.

Answer.—When a headache is relieved by the application of cocaine to the middle meatus, it often means that the headache is of the so-called vacuum type as originally described by Drs. Ewing and Sluder, resulting from a partial or complete occlusion of the nasofrontal duct. It may also mean that a pressure headache resulting from intimate contact of the middle turbinate with the lateral nasal wall has been present, and the shrinking of the mucosa has relieved this pressure. Sometimes the pressure is due to contact of the middle turbinate with the nasal septum, particularly the upper portion known as the tuberculum septi. In these cases the cocaine or epinephrine is introduced between the turbinates and the septum, causing some contraction of the blood vessels in this location, which lessens the contact and pressure and thus relieves the headache.

HIGH PULSE RATE IN A YOUNG GIRL

To the Editor:—I am treating a girl, aged 13, for typhoid. Her illness began May 4 and ran a typical course, lasting five weeks. Her fever, which was between 104 and 105 for three weeks, was controlled by frequent cold sponges and packs. She was given a liberal diet and did not suffer complications, weighing as much at the end of six weeks as at the beginning of her illness. A gradual convalescence has been maintained, but the pulse keeps persistently up in the nineties, ranging from 80 to 104. The blood pressure is systolic 110, diastolic 65. A slight simple goiter, which she has had for some time, enlarges noticeably at the time of her menses and the pulse is usually over 100 at this time. The rapid pulse does not cause symptoms; the heart sounds are normal. Should I allow this patient to assume her regular routine and return to school even if the pulse keeps up? Might this pulse rate be normal for a rapidly growing and developing girl? Would you suggest any further medication? Please omit name.

M.D., North Dakota.

Answer.—In this case the persistent tachycardia might be associated with the simple goiter. A basal metabolism test should be done to exclude hyperthyroidism. If there are no signs of myocarditis, digitalis should be discontinued. Although the pulse rate might be normal for a rapidly growing developing girl, it usually is not that high. From a therapeutic point of view, gradually increasing exercises should be ordered before the child is permitted a full routine. Assuming that the basal metabolism does not give evidence of hyperthyroidism, some authorities would not hesitate to give such a patient small doses of iodine, such as compound solution of iodine, 0.06 or 0.12 cc. (1 or 2 minims) three times a day. If iodine is given, the patient should be watched carefully.

DURATION OF IMMUNITY TO RABIES

To the Editor:—A man, aged 50, received seventeen months ago a full treatment of rabies vaccine, having had a chance for infection. Yesterday he handled another dog with rabies, the slobbers of which may have gotten into an inflamed hangnail on the thumb. May I expect an immunity given by the treatment seventeen months ago or would it be necessary to give another for safety's sake at this time. How long does rabies treatment insure immunity?

Merrill S. Davis, M.D., Marion, Ind.

Answer.—It is not known and it cannot now be told how long the immunity from the treatment against rabies will persist. Experimental work with dogs would indicate that a course of treatments affords protection for eighteen months in that animal. In man the time is said to be shorter. Park describes a case in which the immunity did not last fourteen months. The man, employed in a hospital for dogs, received an eighteen course treatment after a slight wound from a rabid dog. Thinking himself then immune, he became careless and put his abraded hand into the mouth of a rabid dog. Six weeks later he developed hydrophobia—fourteen months after his course of treatments.

SUITABLE OIL FOR USE IN NOSE

To the Editor:—Please send to me a formula for an all round "nose oil" to be used in acute coryzas and similar conditions in children. Please omit name.

M.D., California.

Answer.—One of the simplest preparations is that of liquid petrolatum (light), which is a bland oil and has a soothing effect on mucous membranes. The addition of 1 minim of oleum thymi and 1 minim of oleum pini pumilionis to 1 ounce of oleum paraffini albi makes a pleasant, slightly aromatic preparation. This may be used several times a day, and is especially nice for children's noses.

EMETINE NOT INDICATED IN PEPTIC ULCER

To the Editor:—Could you tell me about the efficacy of emetine hydrochloride intravenously for the treatment of duodenal ulcer? One of my colleagues claims that he has had excellent results proved by the x-rays.

L. H. Salvati, M.D., Westfield, N. J.

Answer.—There is no rational basis for the use of emetine in peptic ulcer. Its intravenous use is so dangerous that it is generally condemned.

ALCOHOLISM AND EPILEPSY

To the Editor:—Is chronic alcoholism in the father ever a cause of epilepsy in his children when there is no family history of epilepsy? Please omit name.

M.D., Ohio.

Answer.—It has never been established that epilepsy can be inherited because of alcoholism in a parent.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: Written examination for Group III candidates to be held in eighteen cities in the United States and Canada, Oct. 31. *Clinical examination for all candidates.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

Arkansas: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

California: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Connecticut: *Regular.* Hartford, Nov. 10-11. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Florida: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

Iowa: Des Moines, Oct. 20-22. Dir., Mr. H. W. Grefe, Capitol Bldg., Des Moines.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

Minnesota: Minneapolis, Oct. 20-22. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

Nebraska: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

Nevada: Carson City, Nov. 2-4. Sec., Dr. Edward E. Hamer, Carson City.

New Jersey: Trenton, Oct. 20-21. Sec., Dr. James J. McGuire, 1101 Trenton Trust Bldg., Trenton.

South Carolina: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

West Virginia: Morgantown, Nov. 19-21. Sec , Dr. W. T. Henshaw, Charleston.

Wisconsin: *Reciprocity.* Milwaukee, Oct. 21. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

Minnesota June Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 16-18, 1931. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states, and 1 physician was licensed by the endorsement of credentials. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine	(1929)	93.1
Georgetown University School of Medicine	(1928)	89.5
University of Michigan Medical School	(1927)	93.6
University of Minnesota Medical School	(1929)	95.1, (1930) 89.2,* 91, 95.2,* (1931) 83.6, 86.4, 88.1, 88.4,* 88.5,* 89.3,* 89.4,* 90.2, 91.5,* 91.5,* 91.5,* 91.6,* 91.6, 92.2,* 92.4,* 92.5,* 92.5, 94, 94.1,* 95.2*
Marquette University School of Medicine	(1927) 95.4, (1928)	97.5
University of Wisconsin Medical School	(1929)	93.6

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine	(1928)	Colorado
Loyola University School of Medicine	(1930)	Illinois
Northwestern University Medical School	(1929)	Wisconsin
Rush Medical College	(1927)	Nebraska
University of Tennessee College of Medicine	(1930)	Tennessee

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
University of Minnesota Medical School	(1930)	N. B. M. Ex.

* These applicants have received their M.B. degree and will receive their M.D. degree on completion of one year's internship in a hospital.

Maryland June Examination

Dr. Henry M. Fitzhugh, secretary, Maryland Board of Medical Examiners, reports the written examination held at Baltimore, June 16-18, 1931. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. One hundred and twenty-five candidates were examined, 122 of whom passed and 3 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1928)	81.8
Georgetown University School of Medicine	(1930)	76.3, (1931) 85.4, 85.5, 87.4, 87.7, 88.3, 88.4, 90.7
George Washington University School of Medicine	(1930)	85, 85.3, (1931) 86.2, 88, 88.7, 89.2, 89.4, 89.8
Howard University School of Medicine	(1929) 82.7, (1930)	77.7, 79.6, 80.2, 82.3, 83.7, 84.4, 89.2, (1931) 85.1
Emory University School of Medicine	(1929)	89.6
Rush Medical College	(1931)	91.7*
Johns Hopkins University School of Med.	(1929) 87.4, (1930)	80.4, 85, 86.8, 87.1, 87.3, (1931) 81.5, 82.7, 83.2, 83.8, 84.1, 84.4, 84.8, 85.3, 86.4, 86.5, 86.6, 87.1, 87.4, 88.2, 88.8, 89.2, 89.7, 90.3, 90.8, 90.8, 92.2, 92.4, 93.1, 93.4, 94.7,
University of Maryland School of Medicine and College of Physicians and Surgeons	(1927) 87.6, (1929)	89, (1930) 77.7, 84.8, 87.5, 87.6, 89, 91.1, (1931) 83.2, 84.5, 85.4, 86, 86, 87.1, 87.2, 87.4, 87.6, 87.6, 87.6 87.8, 88.2, 88.3, 88.5, 88.6, 88.6, 88.8, 88.8, 89, 89.1 89.1, 89.2, 89.4, 89.4, 89.6, 89.7, 89.7, 89.8, 89.8, 90.1, 90.7, 91, 91, 91.7, 91.8, 92, 92.7, 92.8, 94.6
Washington University School of Medicine	(1929)	86.7
University of Rochester School of Medicine	(1930)	80.1, 82.1, 83.6, (1931) 91.3
Jefferson Medical College of Philadelphia	(1931)	87.3, 87.5, 90.7
University of Pennsylvania School of Medicine	(1928)	85.7
Meharry Medical College	(1929)	79.5
Medical College of Virginia	(1930)	84.2
University of Virginia Department of Medicine	(1931)	84.8
University of Toronto Faculty of Medicine	(1925)	86.8
McGill University Faculty of Medicine	(1928)	85.7
University of Berne Faculty of Medicine, Switzerland	(1931)	88.2†

College FAILED	Year Grad.	Per Cent
Howard University School of Medicine	(1930)	70, 72.7
University of Berlin Faculty of Medicine	(1922)	78.5‡

Dr. Fitzhugh also reports 9 physicians licensed by reciprocity with other states, 4 physicians licensed by the endorsement of credentials, and 1 physician licensed by special examination, from Feb. 11 to July 16, 1931. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1917)	California
Indiana University School of Medicine	(1925)	Indiana
College of Physicians and Surgeons of Baltimore	(1893)	N. Carolina
University of Maryland School of Medicine and College of Physicians and Surgeons	(1929)	New York
Ohio State University College of Medicine	(1929)	Ohio
Medical College of Virginia	(1912), (1929) Virginia, (1928)	Penna.
University of Toronto Faculty of Medicine	(1923)	Penna.

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
College of Medical Evangelists	(1930)	N. B. M. Ex.
Johns Hopkins Univ. School of Med.	(1925), (1926), (1927)	N. B. M. Ex.

College SPECIAL EXAMINATION	Year Grad.
University of Berlin Faculty of Medicine	(1919)†

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.
† Verification of graduation in process.
‡ Failed in obstetrics.

Book Notices

Bioassays: A Handbook of Quantitative Pharmacology. By James C. Munch, Director of Pharmacological Research, Sharp and Dohme. Cloth. Price, $10. Pp. 958, with 18 illustrations. Baltimore: Williams & Wilkins Company, 1931.

A few decades ago it was considered heretical for the Pharmacopeia to have any assays other than chemical. Today no modern work dealing with determinations of the potency of drugs is complete without the assays of those indefinite but active mixtures so widely used in medicine, such as digitalis, pituitary and ergot. The important place that has been assumed by bio-assays is revealed in the issuance of this book of nearly a thousand pages dealing with only that portion of pharmacology. The book cannot be classed with such critical works on pharmacology as those of Cushny, Edmunds and Gunn, and Sollmann. It should be looked on in much the same relation to the pharmacologic library as Beilstein is looked on by chemists. It is a compilation that required a prodigious amount of bibliographic work. In the descriptions, the various methods of bio-assays are briefly given with complete references to the original literature. The author, however, does not appear to have incorporated in his work the critical judgment so that one might determine what he feels is the preferred method. His summaries remind one more of an accountant's sheet rather than the work of a critical analyst. The book is a well arranged guide to the physician interested in quantitative pharmacology, as well as one who is well versed in that subject. The author has followed the plan of subtly suggesting to the worker to acquaint himself with the original literature once he has decided to enter on a specific pharmacodynamic experiment. That Dr. Munch is familiar with the Pharmacopeia and all its methods of assay is shown repeatedly. This is probably due to the number of years of contact which he had while in the service of the government working on pharmacopeial subjects. In the preface the author says: "In writing this book, I have attempted to condense the vast amount of information published previous to 1930; to present suitable methods of quantitative pharmacology (bioassays); to focus attention upon the accuracy of experimental results; and to prevent unnecessary duplication of efforts." He has accomplished that purpose in a commendable manner.

EXPLORATION FONCTIONNELLE DES REINS. Par H. Chabanier et C. Lobo-Onell. Avec la collaboration de M. Lebert et E. Lelu. Préface du Professeur Legueu. Paper. Price, 70 francs. Pp. 569, with illustrations. Paris: Masson & Cie, 1930.

Although writing with the broad theoretical aspects of the subject in mind, the authors have striven to make this volume practical in its applications. They pass from a review of the development of our present conceptions as to the significance of the blood and urine examination in normal and pathologic kidney states to an exposition of their own views regarding the evaluation of kidney function. It is hardly surprising that they stress the work of Ambard. It must be pointed out, however, that their references are largely to the French literature. The volume is divided into two main parts. The first, which is concerned with diagnosis, deals with the investigation of the function of the combined and separate kidneys. This portion also contains a critical analysis of the theories of urinary secretion, and finally the authors' scheme for the clinical investigation of kidney function. The second part deals with prognosis from the medical and surgical points of view. The subject matter is arranged in an orderly fashion and is well headed and indexed. Although not all will agree with the conclusions drawn by the authors, they have presented a scholarly and critical work which should be of real interest particularly to those whose special interests lie in this field.

AMERICAN PHYSICIANS AND SURGEONS: A BIOGRAPHICAL DIRECTORY OF PRACTICING MEMBERS OF THE MEDICAL PROFESSION IN THE UNITED STATES AND CANADA, INCLUDING SUPPLEMENTS IN WHICH ARE LISTED AND CLASSIFIED THE LEADING HOSPITALS, SANITARIUMS AND HEALTH RESORTS OF BOTH COUNTRIES. Edited by James Clark Fifield. Leather. Price, $30. Pp. 1737. Minneapolis: The Midwest Company, 1931.

The foreword of this volume states that the book "is offered as a biographical directory of contemporary members of the medical profession who are, at time of going to press, in active practice in the United States and Canada, and who, by reason of their high attainments, skill and reliability, are especially entitled to inclusion in such a book." The publisher expresses the hope that the book will be a valuable source of information to the layman in particular, and incidentally to physicians "who may desire to use it as a guide to aid them in securing competent, safe and reliable medical service." Mr. James Clark Fifield, the editor, is also the editor of a similar book published in the legal field, known as "The American Bar." The book seems to be commendably free from any commercial taint, and the men whose brief biographies appear were not under the slightest obligation to subscribe for the book. "American Physicians and Surgeons" differs from an ordinary medical directory, first, in the fact that it lists only a selected group of physicians, all of whom must be in the active practice of their profession, and, secondly, in that the data are considerably more extensive than the mere date and place of graduation and license, specialty and society membership. As the biographic material has obviously been furnished by the physicians themselves, and as Mr. Fifield is not a physician, the fact that the biography of one doctor in the Middle West states that he has a "Life Fellowship" in the "Society of Science, Letters and Arts of London" becomes merely a matter of amusement. The Society of Science, Letters and Arts of London, as the Bureau of Investigation of the American Medical Association has repeatedly shown, was a serio-comic fake operated by one Albert Sturman, who sold fellowships to such individuals as were willing to pay $5 for the privilege of putting the mystic letters "F.S.Sc. (Lond.)" after their names. Such persons as Brinkler, the "food expert," Lloyd, of consumption-cure notoriety, Jesse A. Case, the mail-order rheumatism specialist, B. F. Bye, the cancer curer, Willard H. Morse, the professional testimonial-giver, and many others of that ilk have been "fellows" of this alleged society. Doubtless in subsequent editions the publisher will scan a little more closely the scientific status of the societies to which physicians who are accepted for inclusion in the book claim to belong.

There is no general alphabetical index of the physicians whose names are listed in the book, which seems unfortunate. It is necessary to know the location of any given doctor before one can look up his biographic data. Physicians' names are alphabetically grouped under the towns or cities in which they live. Such cities are also alphabetically grouped under states similarly grouped. At the beginning of each state list there is a classification of the physicians in that state arranged according to specialties, which are listed alphabetically. Under these specialties is an alphabetical list of the cities in which are the men practicing such specialties. At the end of the book there appears a selected list of general and special hospitals and sanatoriums of the United States and Canada; following this is a list of American health resorts tabulated alphabetically by states.

BIBLIOTHÈQUE DE FILMS RADIOGRAPHIQUES. Publiée sous la direction de Henri Béclère et Pierre Porcher. Série 11: La périostite ossifiante (30 images). Par le Dr. Pehu et le Prof. Policard. Price, 25 francs. Radiographic films. Paris: Masson & Cie, [n. d.].

BIBLIOTHÈQUE DE FILMS RADIOGRAPHIQUES. Publiée sous la direction de Henri Béclère et Pierre Porcher. Série 13: Radiodiagnostic gynécologique. A. Morphologie utérine (30 images). Par le Dr. Claude Béclère. Price, 25 francs. Radiographic films. Paris: Masson & Cie, [n. d.].

BIBLIOTHÈQUE DE FILMS RADIOGRAPHIQUES. Publiée sous la direction de Henri Béclère et Pierre Porcher. Série 28: Lésions traumatiques du poignet (30 images). Par les Drs. Jean Quénu, G. Haret et A. Dariaux. Price, 25 francs. Radiographic films. Paris: Masson & Cie, [n. d.].

These films, of ordinary cinematographic size, are put up in small metallic holders, each comprising several series of roentgenograms on a given subject. The strips may be taken out of the album to be studied by direct observation or by projection in a moving picture machine. A special metal frame of standard size is given so as to place the films in any moving picture machine. Drs. Béclère and Porcher have prepared a series of films with the collaboration of a group of well known French physicians distinguished in the several branches of the profession to illustrate such conditions as cancer of the stomach, tumors of the mouth, diverticula of the duodenum, deformities of the stomach, gastric ulcer, mastoid disease, and a large variety of bone lesions. An attractive section is devoted to gynecologic radiodiagnosis. Cholecystography, dental radiography and a large number of other subjects have been included in the series already out or about to be published. The films sent include series 11, on ossifying periostitis, series 13, on uterine morphology, and series 28, on traumatic lesions of the wrist. The reproductions are excellent. These albums should find a wide circulation.

SEEING: A PARTNERSHIP OF LIGHTING AND VISION. By M. Luckiesh, D.Sc., Director, Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, and Frank K. Moss, E.E., Lighting Research Laboratory, Nela Park, Cleveland. Cloth. Price, $5. Pp. 267, with illustrations. Baltimore: Williams & Wilkins Company, 1931.

The purpose and aim of this unusual book are explained in the preface: "Seeing depends upon light and lighting as well as upon the eyes and the visual sense. Excellent scientific data are available pertaining to vision; but very generally light and lighting have not received much consideration as a partner of the visual sense. We have summarized the results of an extensive series of researches planned to establish the foundation of a science of seeing. Also, we have attempted to coordinate and interpret the data so as to be of practical value in utilizing light to aid human beings to see better and more easily, thereby conserving their eyesight and increasing their usefulness." The nineteen chapters of the book deal with the fatigue and lowered visual efficiency of insufficient and improper illumination from the clinical, industrial and experimental standpoint and with the various phases of light and lighting necessary to increase visual efficiency and human comfort. The results of an enormous amount of experimental work are adduced to prove points in question and the ways and means of improving faulty conditions are pointed out. Graphs, tables and illustrations are used profusely but so simply that a knowledge of higher mathematics is not needed by the reader. A small bibliography points the way to necessary reference reading. A short supplement contains optical illustrations and practical demonstrations. The repeated phrase "optometrists and other eye specialists" is objectionable, but otherwise the book is to be commended.

DIE TUBERKULOSE UND IHRE GRENZGEBIETE IN EINZELDARSTELLUNGEN: BEIHEFTE ZU DEN BEITRÄGEN ZUR KLINIK DER TUBERKULOSE UND SPEZIFISCHEN TUBERKULOSEFORSCHUNG. Herausgegeben von L. Brauer und H. Ulrici. Band IX: Allgemeine Epidemiologie der Tuberkulose. Von A. Gottstein. Paper. Price, 10.80 marks. Pp. 123, with 14 illustrations. Berlin: Julius Springer, 1931.

This short and scholarly contribution to the epidemiology of tuberculosis is divided into thirteen parts, with a short introduction. In the "Measure of Epidemiology," Gill's genesis of epidemics and the natural history of diseases is discussed. In diseases as varied as influenza and malaria, four factors play their parts: the reservoir of the infective agent, the potency of the parasite, the factor of immunity, and the possibility of conveyance. These narrow down in tuberculosis to the amount of infection and of immunity. In all epidemic contagious diseases the frequency, the duration, the result and the connection with certain ages of the persons afflicted are all important factors and in these respects tuberculosis leads all other infectious and epidemic diseases. The epidemiology of tuberculosis is best understood when the disease incidence is classified according to age. In infancy, tuberculosis behaves like an acute infectious disease, with a high mortality and a tendency to generalization. Its course shows how man would have reacted to the bacillus, in the absence of some kind of resistance. In infancy, infection is disease. Contact with consumptives, as in family life, is the chief source of infection. In addition, in an appreciable number of cases feeding with cow's milk containing the bovine bacillus plays a part. The epidemiologic significance of tuberculosis in infancy is negligible. In older children, organ localization is more defined; infection often occurs without apparent disease manifestations; the tendency is toward quiescent infection in most instances. The results of childhood infection depend on whether dosage has been slight or has been repeated and massive. Immediately after puberty the mortality curve rises sharply, especially in females. The original teaching was that quiescent tuberculosis of children flared up in the adult. A later conception, undisputed until recent times, was based on specific immunity reactions. The doctrine of the protective action resulting from childhood infection should not be adhered to in epidemiologic studies. A process of natural selection in the course of many generations has eliminated weaker children before they are able to transmit their inferiority. Tuberculosis in adult life is explained as being due to a loss of personal resistance. The important epidemiologic problem is that of adults, among whom 80 per cent of all deaths from tuberculosis occur in males and 70 per cent in women. While it is shown that the deaths from tuberculosis are higher in young women than in young men, it is only a question of a shift which equalizes itself later on. In the total money loss of wage earners aged from 15 to 55 years, that due to tuberculosis represents 80 per cent. Factors that effect the fluctuations of mortality in this disease are divided into genetic and "peristatic," the latter including change of constitution due to external and environmental agencies. Life insurance companies have long recognized familial frequency of tuberculosis. They have also recognized questions regarding stature and growth for the symptomatic significance of which series of figures are available. The factors of occupation, housing and life in the city or the country are all complex. Attention should be paid to economic conditions but especially to the early diagnosis, to early treatment and to adequate after-care. The average duration of pulmonary tuberculosis, from the time of recognition, is given as from three to four years. Even today, 70 per cent of wage earners die within three years. The effect of the World War is noted in regard to the population of Germany. The mortality of small children and young adults increased more rapidly than that of adults. The death rate in infants was unchanged. The three main causes were the severe influenza, unusual winter weather and economic difficulties, and especially the defective nutrition. The sharp decrease of the death rate from tuberculosis from 1890 to 1900 is considered noteworthy. Improvement in hygiene, and increased knowledge of the disease, have participated.

This somewhat brief work of Gottstein reviews our knowledge of the epidemiology of tuberculosis as we visualize it today. No mention is made of the decrease in all countries of the population that is under 45, a result of the steadily diminishing general death rate. It is the population under 45 that tuberculosis especially affects. Curves showing the death rates from phthisis in London for a period of 200 years are given in Singer's Short History of Medicine, and they indicate that an epidemic of tuberculosis lasted for about 100 years and appears now to be dying out. Tuberculosis has probably disappeared almost entirely from nations more than once in the course of history. Present statistics would seem to indicate that we may again be approaching that fortunate consummation.

RECENT ADVANCES IN ANALYTICAL CHEMISTRY. VOLUME II: INORGANIC CHEMISTRY. Edited by C. Ainsworth Mitchell, M.A., D.Sc., F.I.C. Cloth. Price, $3.50. Pp. 452, with 26 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This volume, a companion to volume I, deals with inorganic subjects, whereas volume I dealt with organic topics. The editor has followed the plan of the first, experts collaborating on the various subjects. There has been correlated considerable valuable information with regard to the recent advances in analytic methods, also indicating the original source from which more detailed instruction may be obtained. In general, this is only partially successful because of the rapidity with which new analytic procedures are forthcoming; in many instances, some are only slight modifications of old well known methods. Conspicuous by its absence is any mention of the use of the various uranyl acetate methods for the determination of sodium. Nevertheless, the book will be a valuable and reliable addition to a collection of books on analytic chemistry.

AN INTRODUCTION TO MEDICAL STATISTICS. By Hilda M. Woods, Assistant Lecturer, London School of Hygiene and Tropical Medicine, and William T. Russell, Statistical Department, Medical Research Council. Cloth. Price, 7s. 6d. Pp. 125. London: P. S. King & Son, Ltd., 1931.

The purpose of this little book is to instruct young medical students, mainly quite devoid of mathematical knowledge or interest, in the meaning and technic of the simplest operations of statistical analysis, it being premised that only a short time can be spared for this part of their training. The result is an excellent primer of statistical technic. The reader is expressly warned that mastering this book will not make him a statistician. What it will do is to give him a glimpse of what vital statistics are; how to tabulate his data; how to translate them into effective and correct graphic form; how to calculate rates of mortality and other vital events, and then to correct these rates so that the more obvious fallacies which lurk about statistics of living things may be avoided; how to calculate averages, measures of variation or dispersion, correlations, regressions, and probable errors. The book is written with simplicity and clearness. Furthermore, within its limited scope, it is sound and dependable. It can be recommended to the medical man wanting to get easily and quickly an elementary idea of the modern statistical point of view and methodology.

WE TAKE TO BED. By Marshall McClintock. Cloth. Price, $2.50. Pp. 321. New York: Jonathan Cape & Harrison Smith, 1931.

Tuberculosis has been described as peculiarly a disease of civilization; since the dawn of civilization it has taken a greater toll of human life than all the pestilences and all the wars. Only during the last generation, as the result of fundamental biologic influences or possibly to some extent of the active, organized fight against the disease, has any indication been given that it was coming under control. The death rate in the United States during the past twenty-five years has dropped from around 200 per hundred thousand to some 70 odd, and tuberculosis as a cause of death has dropped from first to sixth place. There is a tendency on the part of those interested in public health to feel that the point has been reached at which particular attention to the control of this disease is no longer necessary, and the spirit of indifference is already manifest among those interested in public health matters. Furthermore, on account of the tremendous amount of publicity that has been given to the curability of the disease there has developed a certain amount of public indifference to the problem.

No tragedy in human life has greater force than that of the development of tuberculosis. In most cases the disease strikes the individual in the period between the second and third decades just at the time when life is at full tide. To draw such an individual suddenly from the stream of life and to throw him into the eddy of apparent inactivity necessary for a cure as a rule produces such a psychologic shock as to require all his adaptability, judgment, patience and courage. For this reason, tuberculosis remains the greatest psychologic problem with which mankind has to contend. It has been said that the toxins of tuberculosis and syphilis have been responsible for most of the geniuses the human race has developed. Granted that this is true, it is curious that literature contains no classic which describes all the emotions inherent and environmental which may be caused by this disease. The story which such a genius can tell will contain much of tragedy but at the worst will have the compensation of deep feeling which goes to make up the fulness of life.

The popular literature on the subject of tuberculosis is not especially extensive. One of the first popular books was "Ships That Pass in the Night," and another written some time back was "The Davosers." There is not space in this review for any discussion of these books further than to say that they more or less lack any deep consideration of the broader psychologic problems in the individual who has developed tuberculosis. Within a comparatively short time there have been three books dealing with the subject from a nontechnical point of view. The first, "The Magic Mountain," unfortunately deals with a morbid German psychologic attitude toward the disease and is distinctly national in its point of view. Another one, "Sanatorium," is most individualistic in its depiction of just as disagreeable Anglo-Saxon psychology. A short time ago "We Take to Bed," the subject of this review, appeared in this country. The author describes the experiences of himself and his wife at Saranac Lake. He tells the story of his experiences just as they would appear in the Sunday supplement of a popular newspaper. One has the feeling that the author either had superficial emotions or that he purposely chose to skim merely the surface of the vital experiences through which he went. As a graphic superficial story of what two individuals may go through during a sojourn at a tuberculosis resort the book is well worth reading. Any one who knows Saranac Lake will recognize all the points in regard to life there which the author brings out. He is somewhat sophomoric in his protrayal of the personalities of the doctors and nurses with whom he came in contact. He is somewhat pseudoscientific in his description of his experiences in clinical laboratory work, but he describes clearly the care and system used in sputum examinations and urinalyses. He is more inclined to show the faults rather than the virtues of the system developed by Dr. Trudeau at Saranac and so ably carried on by his successors. Even though his wife was quite ill, he makes it manifest that she had the rare feminine quality of understanding her husband and making him happy. It is well worth while to read the book.

Gynécologie chirurgicale. Par C. Sobre-Casas, chef du service de gynécologie de l'Hôpital Torcuato de Alvear à Bueno-Aires. Préface du Professeur Jean-Louis Faure. Paper. Price, 225 francs. Pp. 770, with 966 illustrations. Paris: G. Doin & Cie, 1931.

In this book the author attempts to reproduce illustrations of different gynecologic operations. It differs from most atlases in that practically all the illustrations are reproduced from the books and articles of others. While the author is partial to the French gynecologists, particularly the venerable Faure, he does not by any means slight the Americans or Germans. Unfortunately, many drawings suffered during the process of copying or during reproduction, a large number of them being indistinct. The author has read the literature thoroughly to secure what he considers the best operative procedures. The fifteen illustrations of cervical operations for the relief of sterility might have been omitted, because most gynecologists consider these operations not only useless but actually harmful. At the end of each chapter is an extensive bibliography. In spite of the fact that this book contains 300 pages less than Crossen's last edition and has a paper cover, it is just as heavy as Crossen's book. The pages are too wide and make the book too bulky. Many operations that properly belong in a book on operative gynecology have been omitted. Among these may be mentioned operations on the bladder, ureters and intestine and the technic of local anesthesia, especially for vaginal operations. The author is to be congratulated because the book represents an enormous amount of effort. The language is clear and the book will most likely become popular in French-speaking countries. It is not, however, in a class with such excellent books on operative gynecology as those written by Crossen, Kelly and Döderlein-Krönig.

An Introduction to Organic Chemistry. By Roger J. Williams, Professor of Chemistry, University of Oregon. Second edition. Cloth. Price, $3.50. Pp. 585. New York: D. Van Nostrand Company, Inc., 1931.

This book could be used as the basis for a good course in beginning organic chemistry. It is logically arranged, well written and down to date. The chapter on carbohydrates is particularly good. That on the alkaloids is too brief. The quiz questions and problems at the ends of the chapters are well thought out. Interesting footnotes give short sketches of some of the famous early organic chemists.

Le service social à travers le monde: Assistance, prévoyance, hygiène. Par le Docteur René Sand. Préface de M. Paul Strauss. Paper. Price, 25 francs. Pp. 250. Paris: Armand Colin, 1931.

The author is known internationally as an authority on social service work. The first few chapters contain an historical outline and describe the general principles underlying modern practice. Outlines of social service work in France, England, Germany, Italy, Russia and the United States constitute most of the book. As far as this country is concerned, nearly every activity that might be included in the rather broad field discussed appears to be mentioned. The book will be of interest to social service students.

Miscellany

THE HISTORY OF AGRANULOCYTIC ANGINA

O. H. PERRY PEPPER, M.D.
Philadelphia

On the appearance of a newly described syndrome, one cannot help wondering under what diagnosis such a case would previously have been filed. This is peculiarly true of agranulocytic angina because of the spectacular nature of the local lesions, the blood changes and the rapidly fatal course of many cases.

Schultz[1] is given credit for recognizing the syndrome later named agranulocytic angina by Friedmann, but no one believes that the condition had not previously been seen. For example, an editorial in The Journal[2] quotes Türk[3] as describing, in 1907, similar cases, although he did not distinguish them from the commoner leukopenia of overwhelming infection.

Apparently there is little hope of finding any earlier reference to such cases in hematologic literature, but it would be surprising if such a startling angina had not been described. Reference to standard laryngologic works of fifty years ago seems to justify the view that it was.

In Morell Mackenzie's "Manual of Diseases of Throat and Nose"[4] under the heading "Putrid Sore Throat (cynanche maligna, angine gangréneuse)," one finds a condition defined as follows: "Primitive gangrene of the pharyngeal mucous membrane, constituting an affection *per se,* and originating independently of any other malady, such as diphtheria, scarlet fever, etc."

Mackenzie credits Gubler[5] in 1857 and Trousseau[6] in 1865 with having clearly distinguished the condition from diphtheria. Previously, "a majority of the profession were led to affirm the

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1. Schultz, Werner: Deutsche med. Wchnschr. **48:** 1495 (Nov. 3) 1922.
2. Agranulocytic Angina, editorial, J. A. M. A. **95:** 1428 (Nov. 8) 1930.
3. Türk, W.: Wien. klin. Wchnschr. **20:** 157 (Feb. 7) 1907.
4. Mackenzie, Morell: A Manual of Diseases of the Throat and Nose, London, J. and A. Churchill, 1880.
5. Gubler: Arch. gén. de méd. **9:** 513, 1857.
6. Trousseau: Clin. méd. de l'Hôtel-Dieu, Paris, 1865, p. 324.

nonexistence of a primitive gangrene of the throat, but [thanks to Gubler and Trousseau] the existence of the malady has been clearly recognized, whilst the conclusion has been arrived at that the disease is an extremely rare one."

The writers of that period state that the onset of the condition is sudden, with a rapid onset of pharyngeal gangrene with fever and cervical node swelling. "It is in all instances accompanied by a remarkable prostration of the vital powers." Death usually comes "from syncope."

"On inspecting the pharynx in the first stage of the disease, the appearances are generally by no means characteristic of the approach of so serious an affection, although the peculiar foul smell of the breath may be quite perceptible. As soon, however, as the process of gangrene has commenced, the back of the pharynx, the pillars of the fauces, and the tonsils can be seen covered with discolored patches, sometimes almost black, which are slightly elevated above the surrounding surface, and, forming eschars, ultimately detach themselves from the tissues beneath. Ulcerations, variable in extent and depth, result from the separation of the sloughs. In the worst cases the disease makes constant progress in the direction of the mouth, the esophagus and the air passages, and terminates its onward course only by the death of the patient."

"Occasionally a general tendency to hemorrhage is manifested, and a persistent bleeding occurs simultaneously from the lungs, bowels, nose and mouth, and even under the skin, which becomes covered with petechiae and ultimately sphacelated at the points of ecchymosis."

"In the worst examples of the disease, the sphacelated patches can be noted in the larynx, lungs, esophagus, and throughout the alimentary tract."

The prognosis was grave, "but few cases of recovery are on record."

It is not surprising that the condition was confused with blood poisoning—in our own time the same confusion has existed. Instances of overwhelming infection of the blood stream with leukopenia have been reported as "agranulocytic angina"; also, the cart has been put in front of the horse in attributing the leukopenia of agranulocytic angina to the intensity of the anginal infection.

Naturally, one cannot look for any reports of blood counts in the publications of 1880, but it is interesting to find that Peter,[7] in 1870, in writing of gangrenous angina, describes the gross characteristics of the blood quite carefully. Unfortunately, no conclusions can be drawn from his description.

The description of putrid sore throat, which has been briefly abstracted here, seems to leave little doubt that instances of what today would be diagnosed as agranulocytic angina were included in the group diagnosed as putrid sore throat. What other condition could give a primary gangrene of the pharynx extending along the alimentary canal and leading rapidly in most instances to a fatal outcome? No doubt the diagnosis "putrid sore throat" was applied to a variety of conditions and perhaps indeed included Vincent's angina and certain cases of diphtheria, for in 1880 the diphtheria bacillus had not been discovered. Nevertheless, it seems justifiable to state that it was the occasional case of agranulocytic angina that supplied the spectacular features of the picture described under the diagnosis "putrid sore throat."

It is further interesting to note that by the beginning of the new century the textbooks of nose and throat diseases had begun to omit the heading "Putrid Sore Throat" until by the time Schultz described the syndrome there was no description in the textbooks which corresponded at all to the picture of agranulocytic angina. In the recent books, of course, this omission is being rectified by the description of the syndrome under its present name.

Hospital of the University of Pennsylvania.

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[7] Peter: Dictionnaire encyclopédique des sciences medicales, Paris, Victor Masson et Fils, 1870, p. 703.

Medicolegal

Injury to Bladder in Removal of Cervix

(Sampson v. Veenboer (Mich.), 234 N. W. 170)

Edith Sampson, the plaintiff, gave birth to a six months stillborn child. Thereafter she suffered from severe backaches and a vaginal discharge. A subtotal hysterectomy was performed by a surgeon of Flint, Mich., in the early part of 1924, and the "body" or fundus and the fallopian tubes were removed on account of their diseased condition. The cervix was not removed. After the operation, the plaintiff's condition improved somewhat but the discharge did not entirely stop. Later she and her husband moved to Grand Rapids, Mich. The plaintiff continued to suffer. After failing to obtain relief at the University Hospital at Ann Arbor, Mich., she applied to the defendant, a surgeon, for treatment. He found the cervix in a "very bad condition" and the vaginal canal raw and bleeding. He suspected cancer and removed the entire cervix without abdominal incision. The area was carefully dissected, cleaned and sutured. After a few days, when the dressing was removed, it was found that micturition was taking place involuntarily. A vesical fistula, or opening, appeared in the bladder wall. The defendant and other surgeons undertook, unsuccessfully, to sew up the bladder wall seven different times, three of which operations were performed after abdominal incisions. At the Mayo Clinic, after another unsuccessful attempt had been there made to close the fistula by sutures, the ureters were transplanted so as to connect the kidneys with the sigmoid. The plaintiff instituted suit against the defendant, alleging negligence in the operation he performed to remove the cervix. The trial court gave judgment for the plaintiff, and the defendant appealed to the Supreme Court of Michigan.

The defendant claimed that if he was at all at fault it was because of an honest mistake of judgment in a difficult situation which he was unable to foresee. He testified that the cervix was attached to the bladder wall by scar tissue as a result of the operation in Flint, in 1924, when the fundus was removed, and that the granular bleeding and appearance of the cervix made him suspect the beginning of cancer. In his judgment he had to cut deep so as to remove all diseased parts. It was necessary, testified the defendant, to dissect very close to the bladder wall and he exercised his judgment in determining through a sense of touch how far to cut when his knife encountered scar tissue, which he could not see. It was wholly a matter of judgment in distinguishing between the cervix and the bladder wall, the thickness of which varies in individuals. The defendant claimed, and there was no evidence to the contrary, that the wall of the bladder in this case was exceedingly thin and that it broke or a fistula developed on account of its weakness.

To establish the defendant's negligence, Dr. Louis Thexton of Chicago was permitted to testify concerning the practice of surgery in Grand Rapids and similar communities in western Michigan. The admission of this testimony constituted no error, said the Supreme Court of Michigan. The witness was a physician of experience and had performed somewhat similar operations, even though not the identical one in question. The knowledge that the witness obtained in the court room listening to the defendant's testimony in regard to the practice of surgery in Grand Rapids, together with his own experience, was sufficient to qualify him as an expert, even though he had never practiced in Grand Rapids. The court found it unnecessary to decide whether or not the verdict was against the great weight of evidence, for the trial court erred in failing to charge the jury that a surgeon is not responsible for an honest error of judgment when he adopts a certain course of action. This was not an operation, observed the Supreme Court, similar to a tonsillectomy or appendectomy, where a surgeon usually can see the entire area around the diseased parts. Here he had to exercise his honest judgment and his best ability. If he cut out the tissue in accordance with his best judgment based on surgical skill and experience, and acted in good faith and to the best of his ability, lack of success would be due to error of judgment for which he would not be liable. It would not be negligence. The judgment of the trial court was reversed for the error committed and the defendant granted a new trial.

Hospitals: Liability of Charitable Institutions.—In Ohio, the doctrine of complete exemption of charitable institutions from liability has been repudiated. To a patient, a charitable hospital is liable for any failure on its part to exercise due care in the selection of servants, resulting in injury to the patient. To an invitee, such as special nurse employed by a patient, the hospital is liable for any injury due to the negligence of its agents or servants. Charitable institutions, said the Supreme Court of Ohio, are frequently conducted on a large scale, with all modern conveniences and appliances of a highly complicated nature, which enormously increase the risk of injury to operatives and strangers. Any doctrine of complete exemption would lead to carelessness, neglect and injury to both person and property. Such institutions should be encouraged, and those who are charitably inclined should be encouraged to support them; but this encouragement should not be carried to the point where injustice will be done to others. Innocent persons should not suffer through another's fault. The duty to exercise care to prevent injury to strangers will result in the exercise of greater care to patients. Any encouragement to negligence toward strangers will inevitably be reflected in the service rendered to patients.—*Sisters of Charity of Cincinnati v. Duvelius (Ohio), 173 N. E. 737.*

Insurance, Accident: Trauma and Ruptured Blood Vessel in Head.—The American Liability Company issued an accident insurance policy to the plaintiff's husband, insuring him "against the effects of bodily injuries caused directly, solely, and independently of all other causes by external, violent, and accidental means." The plaintiff was named as beneficiary in the policy. The insured was found in an unconscious condition, fallen partially out of his automobile, with his head on the running board and one of his legs in the front seat of the car. He died four days thereafter, without having regained consciousness. An autopsy showed that a blood vessel had ruptured in his head and that this rupture was the immediate cause of death. No bruises were found on the body. The insurance company contended that the death was due entirely to a stroke of apoplexy and that the fall resulted from the stroke. The medical testimony was conflicting. The position of the insured when found, said the Supreme Court of Ohio, with his head bent under his body so that the weight of the entire body was almost resting on the side of his head and neck, might give rise to a reasonable inference of a violent fall which ruptured the blood vessel. On the other hand, it might give rise to a reasonable inference of a stroke resulting in a fall. Reasonable minds, said the court, might differ as to the conclusion to be drawn from the facts. The question was one of fact for the determination of the jury. The Supreme Court, therefore, affirmed a judgment of the court of common pleas for the plaintiff.—*Fenton v. American Liability Co. (Ohio), 174 N. E. 254.*

Workmen's Compensation Acts: Loss of an Eye.—Under the workmen's compensation act of Michigan, the loss of an eye means loss of the sight or vision of the eye. Loss of an eye, however, does not require total loss of sight. Where sight is destroyed to the extent that no vision useful in industry remains, the eye is lost even though some sight continues. But if any vision useful in industry remains, the eye is not lost. If, by aid of glasses, the vision may be increased to industrial usefulness, the eye is not lost, unless the glasses will prevent useful coordination of the eyes. Where one eye has been previously destroyed and compensation is sought for the loss of the remaining eye, it is held to be only partial disability arising from the accident and compensable specifically as for loss of an eye and not generally as for disability. Where injury to the remaining eye, causing less than blindness, incapacitates the employee from following his trade, it is compensable as for loss of an eye, even though considerable vision remains which would have been useful in industry were the other eye functioning. In the present case, the employee was struck in his left eye by a piece of metal, which lodged therein. A traumatic cataract developed from the injury. A surgical operation necessarily performed on the injured eye destroyed the lens entirely, resulting in the loss of direct vision to the extent of from 90 to 93 per cent. Because of the loss of the lens, too, the injured eye could not coordinate with the direct vision of the good eye. While the employee, after the operation, had no useful direct or central vision in the injured eye, he had peripheral or protective vision. The Supreme Court of Michigan affirmed an award of the department of labor and industry, compensating the employee for the loss of an eye.—*Powers v. Motor Wheel Corporation (Mich.), 234 N. W. 122.*

Libel: Report of Examining Physicians Appointed by Court.—The written report of physicians appointed by a court to make a physical examination of a party to an action in that court constitutes a privileged communication and cannot be made the basis for an action for damages for libel. In this case the plaintiff had obtained a judgment in the district court of Douglas County against his employer under the workmen's compensation act of Kansas. Subsequently the district court appointed the defendants, physicians and surgeons, to examine the plaintiff to determine whether his disability was still existing and whether it was permanent or partial. They were instructed to report the result of their examination to the court. The defendants reported, among other things, "that the cause of plaintiff's injury was a spinal lesion, apparently due to syphilis, and that same was a progressive lesion, and that he, the plaintiff, would probably never be better than he is now." Thereupon the plaintiff sued the defendants for libel. The Supreme Court of Kansas held that the report was privileged and that the plaintiff could not base an action for libel on it.—*Mickens v. Davis (Kan.), 294 P. 896.*

Workmen's Compensation Acts: Liability of Physician for Malpractice.—The Oregon workmen's compensation act provides that a workman injured in the course of his employment by the negligence or fault of a third party has a choice of remedies. He may proceed under the statute to obtain an award of compensation or he may proceed against the third party at common law, but he cannot do both. Having pursued one remedy, he is barred from subsequently invoking the other; if he elects to take under the act, he must assign his cause of action against the third party to the commission, for the benefit of the accident fund. An aggravation of the primary injury resulting from the mistake, negligence or malpractice of a physician in treating the original injury is compensable under the act. Once having received and accepted compensation for the combined injuries, the employee cannot maintain an action against the physician for malpractice.—*McDonough v. National Hospital Ass'n (Ore.), 294 P. 351.*

Society Proceedings

COMING MEETINGS

American College of Surgeons, New York and Brooklyn, October 12-16. Dr. Franklin H. Martin, 40 East Erie St., Chicago, Director-General.

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Associated Anesthetists of the United States and Canada, New York, October 12-16. Dr. F. H. McMechan, 770 Westlake Road, Avon Lake, Ohio, Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Delaware, Medical Society of, Wilmington, October 13-14. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

6: 723-854 (Aug.) 1931

Occurrence and Significance of Electrocardiograms Displaying Large Q-Waves in Lead III. F. A. Willius, Rochester, Minn.—p. 723.
Thyrotoxic Circulatory Symptoms with Low Metabolic Rate. R. S. Morris, Cincinnati.—p. 730.
Status of Heart in Myxedema. C. L. Tung, Peiping, China.—p. 734.
Mechanism of Death of Human Heart as Recorded in Electrocardiogram. K. B. Turner, New York.—p. 743.
Ventricular Fibrillation with Cardiac Recovery Caused by Carotid Sinus Pressure in Case of Auricular Fibrillation. C. Shookhoff, Brooklyn. —p. 758.
Unusual Variations of Roentgen Shadow of Elongated Thoracic Aorta. H. Rosler, Vienna, Austria, and P. D. White, Boston.—p. 768.
Subclavian Pulse in Aortic Valve Disease. H. Feil, Cleveland.—p. 778.
*Digitalis Dosage in Auricular Fibrillation: Influence of Activity of Cardiac Nerves on Size of Effective Dose. E. P. Boas, New York. —p. 788.
Effect of Digitalis on T-Wave of Electrocardiogram: Experimental Study in Human Beings. W. A. Brams and P. Gaberman, Chicago.—p. 804.
New Method for Clinical Determination of Human Capillary Tension. P. Strax and A. C. DeGraff, New York.—p. 807.

Digitalis Dosage in Auricular Fibrillation.—According to Boas, the ventricular rate in patients with auricular fibrillation is largely governed by the balanced activity of the vagus and accelerator nerves. With preponderant vagus activity the rate tends to be slow and stable, with preponderant accelerator activity it tends to be rapid and labile. Patients in whom accelerator influences predominate require much larger doses of digitalis to slow and stabilize the ventricular rate than do those in whom this excess of sympathetic influence is not manifest. This factor of nervous regulation is more potent than the weight of the patient in determining digitalis dosage. The conditions under which auricular fibrillation associated with exaggerated accelerator activity is encountered most frequently in the clinic are in childhood, in patients with neurocirculatory asthenia, with fever, with exophthalmic goiter, and with severe cardiac insufficiency. In these conditions, exceptionally large doses of digitalis must be given to produce and maintain adequate ventricular slowing in the presence of auricular fibrillation.

American Journal of Diseases of Children, Chicago

42: 263-502 (Aug.) 1931

*Effects of Deficiency in Vitamins in Infancy: Caries of the Teeth and Vitamins. C. E. Bloch, Copenhagen, Denmark.—p. 263.
Actinomycosis in Childhood. F. A. Figi and R. E. Cutts, Rochester, Minn.—p. 279.
*Acid-Base Status in Dehydration Accompanying Diarrhea in Infants: Effect of Treatment with Parenteral Fluids. L. A. Hoag and Eleanor Marples, New York.—p. 291.
Plasma Proteins and Edema: Relationship in Group of Children Presenting Nephrotic Syndrome. J. K. Calvin and A. H. Goldberg, Chicago.—p. 314.
*Streptococcus Hemolyticus in Nasopharynx of Children. H. F. Helmholz, Rochester, Minn.—p. 328.
Respiration of Premature Infants. L. A. Shaw and F. R. Hopkins, Boston.—p. 335.
Electrocardiographic Studies in Infectious Diseases: I. Normal Children. C. Shookhoff and L. M. Taran, Brooklyn.—p. 344.

Vitamin Deficiency.—Bloch states that, in man, deficiency in vitamin A has no specific injurious effect on the formation and calcification of the teeth. A disposition to dental caries, therefore, cannot be due to deficiency in vitamin A in infancy. Probably the same applies to a deficiency in vitamins B and C; in this respect one cannot apply the conclusions from experiments on guinea-pigs to man; guinea-pigs are hypersensitive to deficiency in vitamin C, and their incisors grow *continuously*. In man, dental anomalies are due chiefly to abnormalities of the mineral metabolism during the period when the teeth are calcifying. The author's study also shows that the death rate among children is considerable after their recovery from xerophthalmia; hardly two thirds of these children reach the age of 8 years. After this, their development goes on normally. Deficiency in vitamin A leaves no characteristic marks or defects, except in cases of advanced keratomalacia, which nearly always implies impairment of vision or blindness.

Acid-Base Status in Dehydration.—Hoag and Marples believe that the early administration of parenteral fluids to dehydrated, oliguric infants with diarrhea should be sufficiently vigorous to reestablish and maintain fully an adequate output of urine. The fulfilment of this condition by fluids including large amounts of sodium chloride in fourteen infants with varying degrees of dehydration resulted in clinical improvement and tended to correct the acid-base balance in all the subjects. In no instance did this therapy lead to an abnormal accumulation of chloride and a lowering of bicarbonate. The same treatment did not increase the relative loss of fixed base from the body. The actual excess of fixed base lost in diarrhea was fully compensated by a proportionate increase in the excretion of acid principally through the agencies of an augmented output of urine.

Streptococcus Hemolyticus.—Helmholz's study is based on cultures of nasopharyngeal swabbings taken once every two weeks for a period of almost two years in a series of eighteen children, aged from 2 to 14 years. Swabbings were taken in the homes of the children; great care was exercised to bend the wire applicator so as to avoid contact with any portion of the mouth and to touch only the nasopharynx. The swabs were taken to the laboratory immediately and rinsed in 2 cc. of physiologic solution of sodium chloride; two drops were put in a petri dish and incubated in 5 per cent blood agar. In the early part of the work inoculations were also made in deep tubes of dextrose-brain broth. These cultures were allowed to grow for twenty-four hours, and then subcultures were made on blood agar. As was to be expected, certain differences in the numbers of streptococci, staphylococci and gram-negative and gram-positive bacilli were found, but since it was impossible by this method to show any relation to the original number of organisms, it was discontinued and only the direct inoculations of blood agar plates were used. Of the total of 486 cultures, 216 (44 per cent) were positive for Streptococcus hemolyticus and 270 (56 per cent) were negative. In the ninety-eight infections of the upper respiratory tract occurring in the special group during this period, positive cultures occurred in forty-nine and negative cultures in forty-nine. It would appear that the mere presence of Streptococcus hemolyticus in cultures from the throat is of no significance. If, however, it represents a high percentage of the organisms present it may be of etiologic significance.

American Journal of Ophthalmology, St. Louis

14: 719-864 (Aug.) 1931

*Control of Myopia. E. Jackson, Denver.—p. 719.
*Some Interesting Experiences in Clinical Pharmacology of the Eye. D. I. Macht, Baltimore.—p. 726.
Filtration Operation of Mauksch for Chronic Glaucoma with Preliminary Report on Twenty-Four Operations. G. F. Suker, Chicago.—p. 732.
Divergence Paralysis. H. J. Howard, St. Louis.—p. 736.
Unusual Surgical Lesions Affecting Optic Nerves and Chiasm. J. R. Learmonth, W. I. Lillie and J. W. Kernohan, Rochester, Minn.—p. 738.
Fragment of Copper Wire in Vitreous: Case. P. G. Moore, Cleveland. —p. 750.
Diversified Thermophore Therapy. L. T. Post, St. Louis.—p. 752.
Epibulbar Nevocarcinoma with Almost Total Corneal Involvement. R. Castroviejo, Sr., Logrono, Spain, and R. Castroviejo, Jr., Chicago. —p. 757.
Iridencleisis for Glaucoma with Aphakia. O. Wolfe, Marshalltown, Iowa.—p. 769.
Clinical Value of Angioscotometry: System of Central Field Study. J. N. Evans, Brooklyn.—p. 772.
Value of Quadrant Field Defects in Localization of Temporal Lobe Tumors. D. Kravitz, Brooklyn.—p. 781.
Pulsating Exophthalmos. G. L. King, Jr., Alliance, Ohio.—p. 786.
Spontaneous Cyst of Iris: Case. E. A. Shumway, Philadelphia.—p. 792.
*Roentgen Therapy in Pituitary Tumors. G. E. Pfahler and E. W. Spackman, Philadelphia.—p. 796.
Stretching Opponent Muscle as Part of Routine Treatment of Convergent Squint Due to Errors of Refraction. M. E. Smukler, Philadelphia. —p. 808.

Control of Myopia.—According to Jackson, the development and increase of myopia depend on convergence of the eyes for near work, and avoidance of such convergence, by occupation and the use of concave lenses, is the foundation of its rational control. Axial myopia begins in childhood or at birth. There is nothing to indicate that senile myopia is due to increased length of the anteroposterior axis of the eyeball and every reason to believe that it is due to changes in the refraction of the crystalline lens. For the common, most important, form of axial myopia the program includes: 1. Avoidance of much use of the eyes for near seeing in early childhood, during the period of most rapid development and growth, up to 6 to 10 years. 2. Testing the vision and examining the eyes of children entering school, especially for ocular defects that will lead to excessive convergence. Such testing should include accurate measurement of ametropia. 3. Watching the children in school to secure an erect posture and keeping of the book away from the eyes Good print and good illumination both in school and in the home. 4. Sight-saving classes for children having poor vision, or suffering from any ocular condition that would be seriously aggravated by ordinary school work. Each of these children should be placed in such a class on the advice of an ophthalmologist, who should see the child every three months, so long as the sight-saving supervision was necessary. In such a class the child should spend a part of the day in the special room for sight-saving instruction and a part receiving oral instruction with seeing children of the same grade. 5. The constant wearing of accurate correcting glasses, especially of full strength concave glasses. 6. Regular daily, outdoor living and exercise for children, youths and young adults. 7. Close attention to the child's general health and nutrition, including care as to vitamins, and endocrine secretions. The author believes that such a program intelligently carried out would prevent most cases of myopia, would limit to low degree most of the cases that did arise, would prevent the degenerative changes that characterize the later stages of high myopia, and would prevent about 4 per cent of the blindness that now occurs in civilized countries.

Clinical Pharmacology of the Eye.—Macht recounts four interesting experiences in each of which a prescription properly prepared from chemicals conforming to required standards as proved by subsequent tests produced unexpected results in the eyes of the patient. A 2 per cent solution of pilocarpine with 0.5 per cent physostigmine produced mydriasis. A solution of homatropine hydrobromide producing extreme and prolonged mydriasis was found to be contaminated with atropine. Pharmacologic tests were necessary in this connection, being much more delicate than any chemical test. A pilocarpine solution of high purity was found irritating to the eyes of a patient because of unusual sensitization to small differences in hydrogen ion concentration. The cases are presented because of their interest as emphasizing the following practical points: the occurrence of abnormal physiologic effects after the use of certain important alkaloids in ophthalmologic practice, more particularly of physostigmine and pilocarpine; the great variations in potency and effectiveness of various specimens of homatropine on the market; the importance of applied pharmacology in connection with ophthalmologic therapeutics; the extreme delicacy of certain pharmacologic tests as compared with physical and chemical examination of powerful drugs, especially in regard to the detection of contaminations and variations in their therapeutic potency and the importance of constantly bearing in mind the idiosyncrasies and extreme sensitiveness on the part of patients to even small differences in the composition of prescriptions.

Roentgen Therapy in Pituitary Tumors.—Pfahler and Spackman state that pituitary tumors are more amenable to roentgen therapy than tumors elsewhere in the head. In many patients so treated since Gramegna reported the first case in 1909 there has been improvement in the characteristic symptoms. Eye conditions have been better subjectively and objectively. The visual field record has proved a valuable means of gaging improvement. Color fields have been first affected and first to recover. Polyuria, glycosuria and genital dystrophy have improved. Skeletal changes of acromegaly have not been affected except as to arrested progress. Solid adenomas have seemed more radiosensitive than the cystic forms. High voltage irradiation through several small portals of entry has been employed. The case histories of six patients so treated are reported in detail. Three of these were much helped by the treatment. One required operation and two had been under treatment only a short time with some improvement. On the basis of their own experiences and a review of the literature, the authors conclude that the solid adenomas usually respond to this treatment. The cystic adenomas do not. An endothelioma has been successfully treated. Some tumors that have not responded have been found to be carcinoma or sarcoma. The surgical statistics seem to show 20 per cent of permanent recovery, while 80 per cent are followed by recurrent symptoms. Heuer's statistics show that 20 per cent of the cases in which operation was performed were cystic adenomas. It seems that the cystic adenomas are responsive to surgery and the solid adenomas are responsive to irradiation. Since surgery involves great risks, and since irradiation shows no mortality and in skilful hands should not involve damage, it would seem advisable to treat with the high voltage roentgen rays first and keep the patient under observation for from six weeks to six months and operate if there is insufficient response to irradiation.

American Journal of Pathology, Boston

7: 327-422 (July) 1931

Experimental Hepatic Pigmentation and Cirrhosis: I. Does Copper Poisoning Produce Pigmentation and Cirrhosis of the Liver? E. M. Hall, Los Angeles, and E. M. MacKay, San Diego, Calif.—p. 327.
Id.: II. Effect of Heavy Carrot-Feeding on Rabbit's Liver. E. M. Hall, Los Angeles, and E. M. MacKay, San Diego, Calif.—p. 343.
Experimental Copper Poisoning. F. B. Mallory and Frederic Parker, Jr., Boston.—p. 351.
Microchemical Demonstration of Copper in Pigment Cirrhosis. F. B. Mallory and Frederic Parker, Jr., Boston.—p. 365.
Spontaneous and Experimental Infection of Pigeons with B. Aertrycke. J. R. Cash, Peiping, China, and C. A. Doan, Columbus, Ohio.—p. 373.
Systematic Study of Degeneration of Articular Cartilage in Bovine Joints. G. A. Bennett and W. Bauer, Boston.—p. 399.
Metastatic Carcinoma Simulating Hyperparathyroidism. R. L. Mason and S. Warren, Boston.—p. 415.

American Journal of Physical Therapy, Chicago

8: 121-148 (Aug.) 1931

Complete Obstruction of Esophagus Treated by Diathermy. H. Bordier, Lyons, France.—p. 125.
Tonsillectomy Made Safer in Adult Operative Risks: Safer Routine Method and Preparation. S. Morse, New York.—p. 127.
Treatment of Some Common Disfigurements by Physical Methods. G. B. Dowling, London, England.—p. 131.
Habitual Constipation and Its Treatment by Colonic Irrigation. W. K. Russell, London, England.—p. 136.
Nutrition and Its Relation to Calcium Metabolism. G. W. Mathews, Birmingham, Ala.—p. 139.
Physical Therapy Technic. A. T. Noe, Carpinteria, Calif.—p. 145.

American Journal of Surgery, New York

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*Diagnosis of Bone Tumors by Aspiration. B. L. Coley, G. S. Sharp and E. B. Ellis, New York.—p. 215.
The "Zipper Stitch" for Upper Abdominal Incisions. E. H. Pool, New York.—p. 225.
Acute Gastromesenteric Ileus. E. L. Kellogg, New York.—p. 227.
Treatment of Congenital Dislocation at Hip Joint. S. L. Hass, San Francisco.—p. 235.
Fracture of External Sesamoid Bone at First Metatarsophalangeal Joint; Case. M. H. Hobart, Chicago.—p. 242.
Buttonhole Rupture of Extensor Tendon of the Finger. H. Milch, New York.—p. 244.
Osteomyelitis of Gonococcus Origin in an Infant: Case. P. Palew, Brooklyn.—p. 246.
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Stricture of Female Urethra. M. W. King, Cleveland.—p. 251.
Strictures of Ureter. W. Mulvehill, Los Angeles.—p. 256.
Unified Plan for Keeping Records of Carcinoma of Uterine Cervix. F. E. Neef, New York.—p. 263.
Relationship Between Appendicitis and Right Ovarian Retention Cysts. M. Weinstein, Long Island City, N. Y.—p. 270.
Subperitoneal Cholecystectomy: Report of New Method. L. R. Whitaker, Boston.—p. 273.
Toxins of High Intestinal Obstruction. H. J. Jensen and W. M. Firor, Baltimore.—p. 281.
Malignant Adenomas of Colon. E. J. Kilfoy, Los Angeles.—p. 283.
Interduodenal Fistula. W. P. Kroger, Los Angeles.—p. 291.
Houston Valves: Their Rôle as Factor in Rectal Obstipation, Pelvic and Other Dysfunctions. A. J. Murrieta, Los Angeles.—p. 293.
Congenital Absence of Appendix Vermiformis. J. L. Spivack, Chicago. —p. 297.
Sigmoid Flexure in Constipation in Children. M. Tobias, Los Angeles. —p. 301.
Present Conception and Treatment of Shock. H. L. Wenger, Paterson, N. J., and Woodside, L. I.—p. 307.

Operative Treatment for Adrenal Cortical Obesity. H. Koster, M. Goldzieher, W. S. Collens and A. W. Victor, Brooklyn.—p. 311.
Case of Spontaneous Hemopneumothorax (with Some Simulation of Acute Surgical Abdominal Condition). A. T. Milhorat, New York.—p. 315.
New Abdominal Retractor. N. Taube, New York.—p. 318.
Slough After Injection Treatment of Varicose Veins. J. K. Narat, Chicago.—p. 319.

Bone Tumors.—Coley and his associates state that biopsy by the aspiration method is of value in establishing the diagnosis of bone tumors. It has advantages over the operative biopsy but will never completely displace it. In those cases in which the diagnosis cannot be made, even after several attempts, by the aspiration method, recourse can always be had to an operative biopsy. In those cases in which the pathologist is unable to differentiate the exact type of tumor present, it is of advantage to know whether the condition is neoplastic or inflammatory, malignant or benign. In only one case out of thirty-five was the pathologist unable to make a diagnosis and in only two cases out of sixteen which were subsequently checked by paraffin sections of tissue removed at operation or biopsy was the original aspiration diagnosis found to be in error. This method is described with due appreciation of the dangers that may be inherent in its general adoption. The possibilities of error, the necessity for selection of cases for its use, and the unusual demands placed on the pathologist in reaching conclusions from a study of such a small amount of tissue should be borne in mind. The latter consideration is the one that is most likely to limit its field of usefulness.

Annals of Surgery, Philadelphia

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*Diabetes in Relation to Surgery. E. W. Saunders, New York.—p. 161.
*Mortality in Goiter Operations: Analysis of Series of 1,755 Operations During Ten Year Period, 1920-1929, Inclusive. E. Goetsch, Brooklyn.—p. 167.
Historic Phases of Appendicitis. D. C. Collins, Rochester, Minn.—p. 179.
*Changing Picture of Appendicitis in Adults: One Thousand Cases. R. M. Watkins, Cleveland.—p. 197.
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Traumatic Industrial Cancer. I. I. Kaplan, New York.—p. 213.
Foreign Bodies in Stomach and Intestines. J. E. Cannaday, Charleston, W. Va.—p. 218.
Von Haberer's Technic for Radical Stomach Resection Following Previous Gastro-Enterostomy. R. R. Best, Omaha.—p. 233.
*Late Results of Simple Suture in Acute Perforation of Duodenal Ulcer. W. C. White and H. A. Patterson, New York.—p. 242.
Perforated Peptic Ulcer of Meckel's Diverticulum. D. B. Cobb, Goldsboro, N. C.—p. 256.
Similarity in Effect of Experimental High Intestinal Obstruction and High Complete Intestinal Fistula. J. J. Morton and H. E. Pearse, Jr., Rochester, N. Y.—p. 263.
Deep Lipomas of Hand. F. H. Straus, Chicago.—p. 269.
Foot Infections of Peridigital Origin: Routes of Spread and Methods of Treatment. M. Grodinsky, Omaha.—p. 274.

Diabetes in Relation to Surgery.—According to Saunders, the severity of infections in patients with diabetes is probably due to the enhanced growth of glycophilic organisms in tissue abnormally high in dextrose and with a p_H most favorable to toxin production. Ninety per cent of the diabetic patients requiring surgery are over 50 years of age and are suffering from complications much more severe than diabetes. Maintaining a low blood sugar with resultant low tissue sugar and change of tissue p_H helps considerably in controlling the existing infection when conservative surgery is attempted. Gastric or duodenal ulcer, gastritis or duodenitis, or acute cholecystitis may cause edema of the pancreas, peripancreatitis or subacute pancreatitis, which, by causing an exacerbation of the diabetes as well as by causing an actual acute surgical condition, might well explain the difficulty in the differential diagnosis between impending coma and an acute, surgical condition of the abdomen.

Mortality in Goiter Operations.—Goetsch analyzes the factors responsible for the fatal outcome in twenty-two instances of operations for goiter in a series of 1,755 operations carried out during the ten year period from Jan. 1, 1920, to Jan. 1, 1930. On the basis of his study he concludes that iodine, when administered as a preoperative measure only, is a valuable factor in reducing mortality following thyroid operations. Iodine, when administered other than as a preoperative measure, increases the danger of operation and renders the further intensive preoperative treatment relatively ineffectual. Furthermore, indiscriminate treatment with iodine may obscure the fundamental seriousness of an underlying hyperthyroidism and may thus fail to warn the surgeon of a possible postoperative hyperthyroid crisis. *Singularly*, iodine thus administered may also cause acute exacerbation of symptoms, a condition which is most difficult to control and which yields poorly to the well known measures of rest, sedatives, further intensive use of iodine and stage operations. The principal danger signals which should warn the surgeon are unusually acute hyperthyroidism or a prolonged period of hyperthyroidism, which has been present for years and which has reduced the vitality of the patient to a low level; extreme cardiac damage with fibrillation and decompensation; the history and signs of chronic valvular disease; unfavorable history or symptoms referable to the respiratory system, and such special factors as prolonged tracheal compression and recurrent nerve palsy. Incidental bad prognostic signs are extreme asthenia and loss of weight of from 20 to 50 pounds (9 to 23 Kg.) or more; vomiting and diarrhea, which indicate a severe intoxication with probable acidosis; unusually high basal metabolic rates, and unusual nervous and mental symptoms, such as great excitability, irrationalism and ideas of persecution, weakness and debility. Factors safeguarding the mortality are refusal to operate in the presence of even the mildest respiratory infection; proper preparation of the patient; adapting the type and extent of operation to the tolerance of the patient; a carefully conducted operation with the idea of brevity consistent with safety; a proper regard for a rapid pulse, which tends to increase steadily during the course of the operation; avoidance of trauma to the recurrent nerves, parathyroids and trachea, and complete control of hemorrhage, which is of prime importance. Additional factors of safety are a well conducted gas or local anesthesia and a detailed postoperative care.

Changing Picture of Appendicitis in Adults.—From a study of 1,000 case histories of appendicitis in adults, with reference to the major symptoms and signs, Watkins concludes that the present-day picture of the disease is not exactly the same as was the picture of several years ago; that, whereas abdominal pain, nausea, vomiting, muscular rigidity, abdominal tenderness and elevation of pulse, temperature and leukocyte count occur in about the same proportions as formerly, at present there is a lower incidence of constipation, diarrhea and abdominal distention in these patients and that there need be no hesitancy in the diagnosis of appendicitis in persons who present the cardinal symptoms and signs, even though the abdomen shows no distention and the state of intestinal elimination is normal.

Treatment of Perforated Duodenal Ulcer.—White and Patterson state that in the vast majority of cases of acute perforated gastroduodenal ulcer, including the patients who reach the surgeon soon after perforation, simple closure of the perforation, with or without drainage, is the treatment of choice. In early cases the abdomen should be closed without drainage. Patients so treated who survive the immediate hazard have approximately a 60 to 65 per cent chance of remaining permanently free of gastric complaints and a 10 to 15 per cent chance of requiring a gastro-enterostomy at a later date on account of pyloric obstruction. The remaining 25 per cent will be comfortable if careful as to diet and general daily routine. Some of them might best be subjected to partial gastrectomy as a curative measure. Secondary gastro-enterostomy, done on account of subsequent pyloric obstruction after simple closure, should produce uniformly good results. Primary gastro-enterostomy does not produce uniformly good results and should not be done as a routine. A few cases of acute perforated gastroduodenal ulcer are seen in which adequate closure cannot be effected without producing a pyloric occlusion, on account of a large perforation, unusually extensive surrounding induration, or both. These patients may justifiably be subjected to immediate gastro-enterostomy. Careful closure with use of omental reinforcement will reduce to a minimum the cases in which this is necessary. The late results of the Horsley type pyloroplasty in these cases are only fair. Partial gastrectomy in the presence of an acute perforation is not justified.

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24: 177-352 (Aug.) 1931

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Tryparsamide Therapy: Seventy-Six Patients with Neurosyphilis Treated with Tryparsamide. J. V. Lichtenstein, New York.—p. 182.
Hairless Mammals: Comparative Histologic Studies. Lorna Thigpen David, Storrs, Conn.—p. 196.
Blood in Psoriasis, with Especial Reference to Calcium, Phosphorus and Potassium. H. M. Hedge, Chicago.—p. 204.
Bacteriophage Therapy for Pyodermia: Twenty Cases. B. L. Kahn, Philadelphia.—p. 218.
Ultraviolet Irradiation and Autohemotherapy in Late Syphilis. E. Rajka and E. Radnai, Budapest, Hungary.—p. 228.
Syphilitic Parotitis. L. Chargin and T. Rosenthal, New York.—p. 236.
Unusual Coloration of Skin and Mucous Membrane in Aryans. E. V. Kistiakovsky, Kiev, Ukraine, U. S. S. R.—p. 247.
Circumscribed Myxedema of Skin. D. M. Pillsbury and J. H. Stokes, *Philadelphia.—p. 255.*
Keratoma Plantare Sulcatum (Castellani). C. G. Aars, Paramaribo, Dutch Guiana, South America.—p. 271.
Bilateral Herpes Zoster Following Acute Arsenic Poisoning. F. M. Jacob, Pittsburgh.—p. 280.
Fumigation as Aid in Control of Superficial Fungus Infections. S. Ayres, Jr.; N. P. Anderson and Esther M. Youngblood, Los Angeles.—p. 283
Hodgkin's Disease: Surface Lymphogranulomatosis Confined to Oral and Penile Mucosa; Case. H. Sharlit, New York.—p. 288.

Archives of Neurology and Psychiatry, Chicago

26: 1-246 (July) 1931

Effects of Fragmentary and Complete Extirpation of Cerebellum in Cat: Cerebellar Localization. A. Ferraro and L. M. Davidoff, New York. —p. 1.
Optic Nystagmus: IV. Psychologic Conditions. H. C. Fox, Jr.; F. H. Couch and R. Dodge, New Haven, Conn.—p. 23.
*Cerebral Aneurysm and Cortical Herniation. J. J. Keegan and A E. Bennett, Omaha.—p. 36.
*Narcolepsy. H. A. Cave, San Diego, Calif.—p. 50.
*Use of Sulphur for Production of Fever. R. P. Mackay, Chicago — p. 102.
Encephalographic Studies in Cryptogenic Epilepsy. J. Nodkin, New York.—p. 115.
Induction of Sleep in Epileptic Persons. J. Rosett, New York.—p. 131.
Mass Responsiveness in Central Nervous System. L. E. Travis, Iowa City, and J. M. Dorsey, Ann Arbor, Mich.—p. 141.
Galvanic Skin-Reflex: Further Aspects in Psychopathologic Groups. H. C. Syz and Elaine F. Kinder, New York.—p. 146.
Monobromated Camphor: Standardized Convulsant. S. B. Wortis, Helen C. Coombs and F. H. Pike, New York.—p. 156.
Myelitis Occurring in Primary and in Secondary Stage of Syphilis. F. G. Lindemulder, Ann Arbor, Mich.—p. 167.

Aneurysm and Cortical Herniation.—Keegan and Bennett call attention to the fact that cerebral aneurysm should be suspected in cases of spontaneous subarachnoid hemorrhage, particularly in persons under 40 years of age. Anatomic peculiarities of the cerebral arteries and infectious emboli are significant in the etiology of cerebral aneurysm. Arteriosclerosis and syphilis rarely are the cause. Focal neurologic signs frequently indicate the location of the aneurysm after rupture, rarely before, unilateral oculomotor palsy being the commonest localizing sign. Ligation of the internal carotid artery on the side of the lesion is indicated if recurrent hemorrhage occurs. Cortical herniation into arachnoid granulations is of common occurrence in conditions with intracranial pressure. An unusual case of thrombosis of the motor cortex from herniation into large pacchionian bodies is reported.

Narcolepsy.—Cave summarizes the essential features of narcolepsy as follows: Narcolepsy is a condition characterized by the occurrence of sudden attacks of sleep and attacks of cataplexy. While the attacks of sleep present many characteristics that are foreign to normal sleep, there is sufficient similarity between them to justify the clinical application of the term sleeping attack and the assumption that they may have a common etiologic mechanism. All gradations between sleeping attacks without cataplexy to cataplexy without sleeping attacks may occur. Narcolepsy occurs in both sexes and is essentially a chronic condition; although it may incapacitate the person so afflicted, it apparently does not shorten his life. The sudden onset, brevity and rapidity of recovery of the two types of attack are sufficiently similar to suggest a common etiology. The occurrence of dreams during the diurnal attacks of sleep, together with the marked nocturnal restlessness and vivid dreaming, indicates that one is dealing with a mechanism that is disturbed nocturnally as well as diurnally. Narcolepsy may occur as a sequel of *epidemic encephalitis.* The association of obesity with narcolepsy points to a disturbance of the vegetative centers of the brain and of the endocrine system. Narcolepsy shows many clinical manifestations similar to other conditions, especially myoplegia and epilepsy. Pavlov's work on conditioned reflexes with the production of sleep as a result of internal inhibition is reviewed and the theoretical relation of this work to narcolepsy is discussed. The relation to narcolepsy of the sleep that may be produced by organic lesions of the floor of the third ventricle and the cerebral aqueduct is discussed. Attention is drawn to the marked loss of muscular tone and abolition of deep reflexes with the occurrence of an extensor plantar response in both cataplexy and normal sleep.

Sulphur in Production of Fever.—Mackay states that sulphur in olive oil, when injected into the muscles of the outer part of the thigh, produces a high fever, lasting from thirty-six to sixty hours, with variable elevation in the pulse rate, a vasomotor and a diaphoretic response less marked than in fever from typhoid vaccine, a marked polymorphonuclear leukocytosis and other less important physiologic changes. Local pain and tenderness at the site of injection, while present, are not particularly troublesome to the average patient with dementia paralytica. Experimental injections of suspensions of sulphur in oil and sulphur in acacia-saline solution into the rabbit's leg show a marked localized necrosis with an acute inflammatory reaction which is finally resolved. This work tends to show that the fever and other changes following the injection of sulphur intramuscularly result from the breaking down of muscle tissues into fragments which, when absorbed, cause a so-called protein reaction. Fever produced by injections of sulphur seems capable of effecting the same therapeutic results that any other form of fever can produce. It is chiefly of value in cases of dementia paralytica in which malaria is indicated and in many ways is superior to malaria, especially in the hands of the average physician.

Archives of Surgery, Chicago

23: 175-356 (Aug.) 1931

*Gallstones in Common Bile Duct. E. S. Judd and J. M. Marshall, Rochester, Minn.—p. 175.
*Aneurysm of Splenic Artery: Case and Review of Literature. W. E. *Lower and J. I. Farrell, Cleveland.—p. 182.*
*Normal Thyroid in Relation to Classification of Goiters. J. W. Hinton, New York.—p. 191.
*Hepatogenous Cholecystitis. E. Andrews and L. Hrdina, Chicago.—p. 201.
*Fibrocartilaginous Tumors of Bone. C. F. Geschickter, Baltimore.—p. 215.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; J. Verbrugge, Antwerp, Belgium, and A. A. Kutzmann, Los Angeles.—p. 329.

Gallstones in Bile Duct.—Judd and Marshall review a series of 1,608 consecutive cases in which stones of the common bile duct were removed by operation at the Mayo Clinic. This number does not include 160 cases of stones in the ampulla of Vater that they have reported elsewhere. The 1,768 patients who underwent removal of stones from the common bile duct, including the ampulla of Vater, represent 13.2 per cent of all those from whom gallstones were removed during the period corresponding to that during which the cases included in the authors' study were collected. There were 1,120 women and 488 men in this series, a ratio of *2.2 to 1. It was found that* in the series of 1,608 patients the mortality rate was 6.7 per cent. Various causes were responsible for the number of deaths represented by this percentage, as follows: local or generalized peritonitis, 24 per cent; pneumonia, 24 per cent; hemorrhage in one form or another, 18 per cent; acute or chronic nephritis *with renal insufficiency, 10 per cent, and pulmonary embolism,* 7 per cent. The remainder of the deaths were due to cardiac failure, suppurative cholangeitis, diabetes mellitus, meningitis, ulcerative colitis and atrophy of the liver with hepatic insufficiency. The patients who survived the operation were, in the great majority of cases, completely relieved from their symptoms and have remained well. In the follow-up records it was found that 75 (4 per cent) have returned to the clinic because of recurring trouble and, in 55 of these, stones were again removed from the common bile duct.

Aneurysm of Splenic Artery.—Lower and Farrell believe that in persons exhibiting paroxysmal attacks of pain in the upper portion of the abdomen accompanied by gastro-intestinal hemorrhages and an epigastric tumor and in whom roentgenologic examination fails to disclose an organic lesion of the stomach, the possibility of a splenic aneurysm should be considered. In view of the pancreatic involvement in two cases of splenic aneurysm, an examination of the stools for undigested fat should be made in order to determine whether or not a pancreatic deficiency exists. A study of the enzymatic strength of the urine also would be useful, since in diseases of the pancreas an increased amylase content is not infrequently found in the urine. In all cases of abdominal tumor, stethoscopic examination should be made as a routine measure in order to determine the presence or absence of a bruit. In operating on an aneurysm of the abdominal cavity, accurate hemostasis is essential, as in all cases in which a tampon was used the patients died. If removal of the spleen is necessary for hemostasis, or ligation of the splenic artery and vein is essential, either may be done without fatal results.

Normal Thyroid.—Hinton remarks that when the normal picture is variable and the clinical and pathologic pictures of different types of goiter are interchangeable, it makes one wonder whether the past conception of the different types as clinical entities was not wrong, the types merely representing stages of a continuous disease, as maintained by Hertzler. If they do, he suggests that the treatment of goiters might be simplified and, instead of there being medical treatment for one type and surgical treatment for another, the patient should first be treated medically, if after careful physical examination and metabolic studies there is no evidence of an encapsulated tumor, hyperthyroidism or symptoms of pressure which constitute definite indications for surgical intervention.

Hepatogenous Cholecystitis.—Andrews and Hrdina describe experiments in which they noted that in biliary stasis the gallbladder of the dog promptly becomes infected with the characteristic anaerobic flora of the liver. Pathologic studies at various stages show that this infection occurs by direct extension from the liver. The authors believe that the fulminant type of human cholecystitis is often caused by the Welch bacillus from the liver.

Fibrocartilaginous Tumors of Bone.—Geschickter states that the gradations in a single type of tissue differentiation encountered in the osteochondromas (in which bone predominates), in the benign chondroma (in which cartilage predominates) and in the primary and secondary forms of chondromyxosarcoma (in which myxoma and fetal cartilage predominate) seem to imply a close relationship between the formation of tumors and the factors concerned in the growth and differentiation of tissue. Apparently all these various tumors have their origin in a single mother substance, an early precartilaginous connective tissue, and their varying degrees of malignancy are an expression of the rate and extent of differentiation in this tissue. When the rate of differentiation is slow and the extent of cartilage and bone formation is large, a benign exostosis results. When the rate of differentiation is rapid and the amount of adult cartilage and ossification is small, the neoplasms take the form of a chondromyxosarcoma. When an intermediate condition prevails, a benign chondroma, showing a definite tendency to malignant change in many instances, is produced. In all these tumors, however, the character of the histogenic cycle is the same, implying that the tissue of origin and not the etiologic agent is the determining factor in this regard. Whether or not the rate and extent of differentiation that govern the degree of malignancy is predetermined in the tissue at the time of the tumor's origin or whether it is dependent on the etiologic factor precipitating the growth is difficult to decide. Apparently, however, the etiologic factor is a secondary and variable influence. This is indicated by the fact that the benign exostoses may be accurately duplicated by gonorrheal spurs and arthritic osteophytes of known infectious origin, while similar benign growths such as those in multiple exostoses of the chondrodysplasia type show a definite hereditary tendency. That such widely divergent influences should find expression in a single form of neoplastic process speaks for the preexistence of a normal growth cycle, which may be thus set in motion and which determines the development and character of the neoplasm. Finally, the fundamental pattern of construction in skeletal tissues (the substitution of connective tissue by cartilage and of cartilage by bone), the order of which is adhered to in evolution, in embryology and in all the various forms of benign and malignant tumors in the fibrocartilaginous group, indicates an inherent and immutable sequence, which prevails in spite of the avowed lawlessness of tumor growth. The sequence or order of differentiation that is apparent in this group of tumors of the bone suggests that the formation of the tumor itself is part of the evolutionary process of pattern reproduction and an expression of the ever present tendency to variation manifested in the derivation of form and pattern throughout the organic world.

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Tubed Pedicle Flap in Reconstruction Surgery: Cases. G. W. Pierce and G. B. O'Connor, San Francisco.—p. 94.
Syphilis: Treatment of Wassermann-Fast and Cerebrospinal by Modern Methods. J. E. Potter, San Francisco.—p. 97.
Visual Requirements for Automobile Drivers. M. F. Weymann, Los Angeles.—p. 101.
Gonorrhea in Female. A. V. Pettit, San Francisco.—p. 103.
Colic in Infancy: In Second Trimester; Case. A. J. Scott, Los Angeles. —p. 107.
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Acne Rosacea, with Particular Reference to Gastric Secretion. N. Epstein and D. Susnow, San Francisco.—p. 118.
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25: 125-254 (Aug.) 1931

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Some Simple Psychiatric Conceptions. E. C. Menzies, Verdun, Quebec. —p. 140.
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Acute Pancreatitis. P. E. Hopkins, Chicago.—p. 109.
Roentgenotherapy of Conditions Other Than Malignancy. I. S. Trostler, Chicago.—p. 113.
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Factors in Tuberculosis Which Make It a Public Health Problem. D. D. Monroe, Edwardsville.—p. 142.
Seminal Vesicle Infection. A. McNally, Chicago.—p. 147.
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Oculist or Optician, Which Shall It Be? G. F. Scheib, Champaign. —p. 155.
Primary Union in External Perineal Urethrotomy. C. O. Ritch, Chicago. —p. 160.
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A Medical Clinic. C. P. Howard, Montreal.—p. 425.
Mild and Brief Forms of Manic Depressive Psychosis and Their Treatment. G. E. Neuhaus, Omaha.—p. 438.
Use of Dick Methods in Control of Scarlet Fever Epidemic in Waterloo, Iowa. P. S. Rhoads, Chicago.—p. 443.
Anterior Poliomyelitis: Stressing Especially Preparalytic Diagnosis and Serum Therapy. H. J. Hartman, Waterloo.—p. 444.
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Tularemia in Norway. T. Thjøtta, Oslo, Norway.—p. 99.
Destruction of Micro-Organisms in Gastro-Intestinal Tract. B. E. Montgomery, A. K. Boor, L. Arnold and O. Bergeim, Chicago.—p. 104.
Brucella Abortus of Bovine, Porcine and Equine Origin. W. N. Plastridge, Storrs, Conn., and J. G. McAlpine, Caracas, Venezuela.—p. 127.
*Toxins of Streptococcus Epidemicus from Epidemic Septic Sore Throat. I. Pilot and I. Dreyer, Chicago.—p. 135.
*Influence of an Exclusive Meat Diet on Flora of Human Colon. J. C. Torrey and Elizabeth Montu, New York.—p. 141.
Diagnosis of Tuberculosis: Comparison of Results Obtained with Herrold Egg Yolk Agar Medium and with Inoculation of Guinea-Pigs. Carrie I. Woolsey, Chicago.—p. 177.

Toxins of Streptococcus Epidemicus.—According to Pilot and Dreyer, Streptococcus epidemicus of epidemic septic sore throat produces a toxin, as determined by intradermal test, 98 of 324 persons (30 per cent) giving positive reactions. Susceptible persons, as well as rabbits, may be immunized with the epidemicus toxin. Skin reactions to the toxins of Streptococcus epidemicus are widely divergent from those to the toxin of Streptococcus scarlatinae. Of 208 persons, 46 gave positive reactions to scarlet fever toxin, 56 to the epidemicus toxin and only 10 to both toxins. An attack of scarlet fever resulted in a loss of the skin reaction to the scarlet fever toxin but did not affect the skin reaction to the epidemicus toxin. Of 24 patients convalescent from scarlet fever who were negative to the Dick test, 8 (33 per cent) reacted to the epidemicus toxin. In persons giving positive reactions to both toxins, immunization *with scarlet fever toxin resulted in the disappearance of* the susceptibility to the scarlet fever toxin but did not affect the susceptibility to the epidemicus toxin; immunization with the epidemicus toxin resulted in loss of susceptibility to this toxin, while the result of the Dick test remained positive. Antiserums produced by means of the epidemicus toxin appear to be specific. They neutralize the epidemicus toxin but do not affect the scarlet fever toxin in persons giving positive reactions to skin tests with both toxins.

Influence of Meat Diet on Flora of Colon.—Torrey and Montu give a report of the effect of an exclusive meat diet on the colonic flora of three men, two of whom (A and S) continued on this diet for thirteen months and one (D) for ten days. The fat averaged from 1.5 to 1.75 times the protein by weight, and the only carbohydrate was that in the meat, amounting to from 5 to 10 Gm. a day. The principal observations were as follows: The fecal specimens during the period of the meat diet consisted of finely divided material with a mild acid, aromatic odor, generally inoffensive, and with a reaction varying from neutral to moderately acid (p_H 7 to 6). Direct microscopic counts of bacteria showed within from seven to ten days a decrease of about 50 per cent in the total number of bacteria. In subject A this lower count persisted throughout the entire period of the meat diet, whereas in S the total bacterial count remained for most of the time about 15 per cent below the level of the preliminary period of mixed diet. As shown by both microscopic and cultural examinations, the decrease in bacterial numbers was due to the suppression of types largely dependent on carbohydrate for their metabolism, such as Bacillus acidophilus and Bacillus bifidus, enterococci, streptococci and a group of micro-aerophil bacteria. In subject S the meat diet proved unfavorable to spirochetes. Long continuance of the meat diet reduced the count of viable Bacillus coli in the fecal specimens of A to one fourth or less of the number during the preliminary period of mixed diet, whereas in S the reduction was less marked. The percentage of hemolytic B. coli was greatly increased during the first few weeks. The sucrose-positive types were favored and also the stronger producers of indole. No increase in virulence was noted. Bacillus welchii was clearly favored by the meat diet for several months, for A the estimated count being from 10 to 10,000,000 times that of the preliminary period of mixed diet and for S from 100 to 10,000 times. After one year the number was reduced to the level of the preliminary period. Proteolytic anaerobes were not added to the colonic flora by the meat diet, and the native types were *not favored. Aerobic proteolytic types, such as Proteus,* did not appear in the flora of S and only late in the period of the meat diet in the flora of A. Micrococcus zymogenes appeared to be favored by the meat diet. There occurred, however, no definite and consistent increase in the proteolytic action of the whole flora on cooked meat medium and the observations, as a whole, indicated that an exclusive meat diet, even continued for a long period, is not necessarily conducive to the establishment of an obligate proteolytic flora in the human colon. On resumption of a normal mixed diet, a flora similar to that of the preliminary period of mixed diet, as regards bacterial types and numbers, recurred.

Journal of Preventive Medicine, Chicago

5: 227-301 (July) 1931

Concerning Distribution of Diphyllobothrium Latum in North America. T. B. Magath and H. E. Essex, Rochester, Minn.—p. 227.
Brucella Antibodies in Human Serum. J. W. Martin and J. T. Myers, Omaha.—p. 243.
Inheritance of Natural Immunity to Plasmodium Cathemerium in Two Species of Culex. C. G. Huff, Chicago.—p. 249.
Protective Measures of State of California Against Botulism. K. F. Meyer, San Francisco.—p. 261.
Significance of Agglutinins in Normal Persons. L. C. Havens and Catherine R. Mayfield, Montgomery, Ala.—p. 295.

Journal of Urology, Baltimore

26: 167-326 (Aug.) 1931

President's Address. R. H. Herbst, Chicago.—p. 167.
Aberrant Renal Vessels in Children. G. M. Fister and E. H. Smith, Ogden, Utah.—p. 175.
*Renal Tuberculosis. J. R. Caulk, St. Louis.—p. 189.
Hemangioma of Kidney: Two Cases and Brief Résumé of Literature. D. W. MacKenzie and A. B. Hawthorne, Montreal.—p. 205.
Diverticulum of Ureter: Three Cases. H. G. Bugbee, New York.—p. 215.
Neurosurgery in Treatment of Diseases of Urinary Bladder. III. Treatment of Certain Types of Vesical Paralysis. J. R. Learmonth, Rochester, Minn.—p. 229.
Pyeloscopy: Diagnostic Procedure Which Promises to Inaugurate New Era in Recognition and Satisfactory Treatment of Painful Abnormal Motility Syndromes of Upper Urinary Tract. W. P. Herbst, Minneapolis.—p. 233.
Excretion of Sodium Thiosulphate by Perfused Kidney. L. Elaut, Rochester, Minn.—p. 241.
Reflux Pelvic Lavage. S. F. Wilhelm, New York.—p. 247.
Rare Bladder Tumor (Fibromyoma) in Child. E. W. White, Chicago.—p. 253.
Vesical Diverticulum, Complicating Prostatic Obstruction: Unusual Case. H. A. Fowler, Washington, D. C.—p. 261.
Recurrent Benign Prostatic Obstruction. J. H. Cunningham, Boston.—p. 271.
Benign Prostatic Hypertrophy in Dwarf: Case. H. E. Pearse, Jr., New York.—p. 279.
Radical Operation for Cure of Cancer of Penis. H. H. Young, Baltimore.—p. 285.
Young's Radical Operation for Cure of Cancer of Penis: Thirty-Four Cases. L. G. Lewis, Baltimore.—p. 295.
Simple Device for Serial Pyelo-Ureterograms. T. D. Moore, Memphis, Tenn.—p. 317.
Sucker for Extracting Small Stones from Kidney Calices. W. E. Lower, Cleveland.—p. 325.

Renal Tuberculosis.—According to Caulk, renal tuberculosis is declining in frequency as a result of the improvement in the early diagnosis and treatment of pulmonary and general tuberculosis and the prevention of massive lesions. Early diagnosis in renal tuberculosis is paramount. The cystoscopic picture is most significant. In unilateral renal tuberculosis, nephrectomy should be performed promptly. Surgery in bilateral renal tuberculosis is indicated only in cases of emergency to relieve toxemia from pyonephrosis or to correct intractable vesical lesions. *The immediate relief of symptoms* in many of the cases after nephrectomy is due to the removal of a tuberculin reaction created by the products of bacteria, dead and alive, tuberculoproteins, fats and fatty acids. Often the more acute the lesion in the bladder, the more quickly the healing and relief of symptoms following the removal of the diseased kidney. The chance of healing in chronic renal surgical tuberculosis is remote and not comparable to the simple early experimental lesions. The mortality of nephrectomy is exceedingly low. The relief of bladder symptoms may be expected in at least 75 per cent of the cases of unilateral renal disease instead of an almost positive assignment to invalidism if the patients are left to medical care.

Kansas Medical Society Journal, Topeka

32: *253-288 (Aug.) 1931*

Prognosis Versus Treatment in Pernicious Anemia. E. A. Miner, Independence.—p. 253.
Rational Radiology. G. W. Jones, Lawrence.—p. 255.
Operative Treatment of Ptosis. A. J. Baer, Kansas City, Mo.—p. 262
Resolution Concerning New Plan of Benefits to Veterans of World War With Nonservice Connected Disabilities Together with Discussion of Resolution. H. H. Shoulders, Nashville, Tenn.—p. 266.
Phase of High Cost of Illness. W. Singleton, McCracken.—p. 270.
Ye Vacation of Dr. Pepys. J. A. Dillon, Larned.—p. 271.

Kentucky Medical Journal, Bowling Green

29: 389-450 (Aug.) 1931

Bone Infections from Standpoint of Roentgen Interpretation. S. E. Johnson, Louisville.—p. 392.
Early Diagnosis in Pulmonary Tuberculosis. H. C. Herrmann, Louisville.—p. 393.
Diagnosis of Peptic Ulcers. S. A. Overstreet, Louisville.—p. 394.
Mediastinal Tumors. D. Y. Keith, Louisville.—p. 396.
Roentgen-Ray Treatment of Blood Disease. I. T. Fugate, Louisville. —p. 399.
Diseases of Colon. J. H. Harrison, Owensboro.—p. 402.
Infant Feeding and Preschool Child. L. Palmer, Louisville.—p. 405.
Chorea: Fatal Case. J. J. Moren, Louisville.—p. 407.
Psychopathic Personalities. W. E. Gardner, Louisville.—p. 411.
Pernicious Anemia. B. H. Sigler, Owensboro.—p. 416.
Unusual Case of Heart Block. E. E. Butler and W. B. Troutman, Louisville.—p. 418.
Syphilis of Larynx. O. O. Miller, Louisville.—p. 421.
Modern Concepts in Nephritis. F. M. Stites, Louisville.—p. 422.
Preoperative and Postoperative Treatment. U. H. Smith, Louisville. —p. 429.
Operative Technic for Goiter. H. R. Wathen, Louisville.—p. 430.
Superfluous Hair and Roentgen Ray. W. J. Young, Louisville.—p. 435
Lung Abscess. L. W. Frank, Louisville.—p. 438.
College of Physicians and Surgeons, Louisville, 1880, Then and Now W. B. Doherty, Louisville.—p. 442.

Medical Journal and Record, New York

134: *157-208 (Aug.) 1931*

Question of Depletion and Saturation of Vitamins A and D in Malnutrition, with Especial Reference to Effects of Cod Liver Oil Concentrate. B. Gordon and Isabel Roberts, Philadelphia.—p. 157.
Rôle of Roentgen Diagnosis in Gastro-Intestinal Diseases. L. L. Perkel, Jersey City, N. J.—p. 159.
Roentgen Rays That Mislead. M. B. Lenley, New York.—p. 162.
Prevention of Myopia. E. S. Thomson, New York.—p. 163.
Some Phases of Epilepsy. W. T. Shanahan, Sonyea.—p. 166.
Present Status of Birth Control Movement in England and United States: Recent Developments. S. A. Knopf, New York.—p. 171.

Military Surgeon, Washington, D. C.

69: 129-258 (Aug.) 1931

First Air Division (Provisional) Maneuvers. C. L. Beaven.—p. 129.
Medical Activities in Managua Earthquake. W. B. Hetfield.—p. 143.
Dietetic Department, Walter Reed General Hospital. A. L. Parsons and G. A. Ekwen.—p. 149.
Passive Immunity to Measles Conferred by Whole Blood Intramuscular Injections. M. A. Farlow.—p. 155.
Fort Robinson, Nebraska—Extracts from Its Medical History. M. B. Dunning.—p. 157.
Experiment in Use of Individual Tubes in Prophylaxis of Venereal Disease. B. F. Duckwall and W. C. Cox.—p. 172.
Experimental Transplantation of Ureters in Bowel by a Two-Stage Operation. C. Ferguson.—p. 181.

Nebraska State Medical Journal, Lincoln

16: 297-336 (Aug.) 1931

The Country Doctor Looks Around. A. A. Conrad, Crete.—p. 297.
Progress of Surgery. H. H. Davis, Omaha.—p. 303.
Discussion of Poliomyelitis. E. E. Farnsworth, Grand Island.—p. 305.
Some of the More Important Points in Early Diagnosis of Brain Tumors and Their Present Day Treatment. E. Sachs, St. Louis.—p. 309.
Primary Carcinoma of Liver: Four Cases. W. Barry and B. C. Russum, Omaha.—p. 312.
Sketch of Life and Work of Leonardo Da Vinci. C. M. Wilhelmj, Omaha.—p. 315.
Present Day Sinus Trouble Complex. C. T. Uren, Omaha.—p. 318.
Grading Doctors. A. E. Reeves, Farnam.—p. 320.
Myoma of Stomach: Unusual Case. M. Emmert, Omaha.—p. 323.

New England Journal of Medicine, Boston

205: *367-420* (Aug. 20) 1931

Physical Therapy in Retrospect. W. D. McFee, Boston.—p. 367.
Physical Treatment of Mental Illness. J. A. Holland, Trenton, N. J., and Philadelphia.—p. 371.
Hyperthermia in Dementia Paralytica: I. Blood Chemistry Studies. C. T. Perkins, Worcester, Mass.—p. 374.
Value of Hysterosalpingography: One Thousand Cases. S. A. Robins and A. A. Shapira, Boston.—p. 380.
Roentgen Examination for Peptic Ulcer, with Especial Reference to Those Cases Presenting Unusual Difficulties in Diagnosis. R. Dresser, Worcester, Mass.—p. 395.
Agranulocytosis: Four Cases. B. H. Ragle, F. D. Adams and J. H. Fay, Boston.—p. 400.
Reflex Tenderness: Sign of Gallbladder Disease. G. Levene, Norwood, Mass.—p. 403.

Philippine Islands M. Assn. Journal, Manila

11: 261-296 (July) 1931

Public Health in Europe. P. I. de Jesus, Manila.—p. 261.
Relation Between the State of Nutrition of Mother and the Birth Rate, and Rate of Living Children and Weight at Birth. H. A. Sison and J. Calang, Manila.—p. 272.
Professional Relationship Between Nurse and Physician. P. Anzures, Manila.—p. 276.

Philippine Journal of Science, Manila

45: 483-600 (Aug.) 1931

Partial Revision of Ganoderma Applanatum Group, with Particular Reference to Its Oriental Variants. C. J. Humphrey and S. Leus, Manila. —p. 483.

Public Health Reports, Washington, D. C.

46: 1869-1908 (Aug. 7) 1931

Typhus Fever: Rat Flea, Xenopsylla Cheopis, in Experimental Transmission. R. E. Dyer, E. T. Ceder, A. Rumreich and L. F. Badger. —p. 1869.
Coordination in Sanitary Control of Bottled Mineral Waters. W. S. Frisbie.—p. 1873.

46: 1909-1980 (Aug. 14) 1931

Age and Sex Incidence of Influenza and Pneumonia Morbidity and Mortality in Epidemic of 1928-1929 with Comparative Data for Epidemic of 1918-1919. S. D. Collins.—p. 1909.
Dermatitis Venenata Due to Contact with Brazilian Walnut Wood. L. Schwartz.—p. 1938.
Important Source of Original Rat Infestation on Newly Constructed Vessels. B. E. Holsendorf.—p. 1943.

Western J. of Surg., Obst. & Gynec., Portland, Ore.

39: 569-648 (Aug.) 1931

*Air Embolism in Thyroidectomy: Experimental Study. M. Nordland, B. E. Hall and K. I. St. Cyr, Minneapolis.—p. 581.
Preoperative Preparation of Goiter Patients. V. E. Chesky, Halstead, Kansas.—p. 592.
Postoperative Care of Goiter. J. M. Hayes, Minneapolis.—p. 597.
Cause of Exophthalmos. B. T. King, Seattle.—p. 602.
Primary Treatment of Nerve Wounds. H. G. Willard, Tacoma, Wash —p. 610.
Clinical and Pathologic Study of Carcinomatous Gastric Ulcer, with Particular Reference to Grading of Malignancy. W. H. Bueermann, Portland.—p. 614.

Air Embolism in Thyroidectomy.—Nordland and his associates describe experiments on dogs, from which they conclude *that air embolism* should be considered as a possible cause of sudden death during thyroidectomy. The total quantity of air necessary to cause death is not constant, the fatal dose varying with the same and different species. The probable cause of death is an arrest of the pulmonary circulation and consequently of the systemic circulation, resulting from futile contractions of the right ventricle in a medium of frothy blood. The patient with toxic goiter is much more susceptible to fatal air embolism than the patient with a nontoxic goiter.

Wisconsin Medical Journal, Madison

30: 516-605 (July) 1931

Summary of Gastro-Intestinal Structures with Reference to Production and Regulation of Gastroduodenal Functions. E. J. Carey, Milwaukee. —p. 530.
Functions of Gastro-Intestinal Tract with Especial Reference to Ulcer-Producing Gastroduodenal Malfunctions. W. J. Meek, Madison.—p. 534.
The Pathology of Gastroduodenal Ulcer. C. H. Bunting, Madison.—p. 537.
Experimental Aspects of Gastroduodenal Ulcer. F. Raine, Milwaukee. —p. 540.
Gastroduodenal Ulcer: Surgical Aspects. J. Yates, Milwaukee.—p. 547.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Dermatology & Syphilis, London

43: 385-476 (Aug.-Sept.) 1931

Effects on Skin of Concentrated Ultraviolet Light and Its Use in Dermatologic Therapy. S. Lomholt.—p. 385.
Acne Agminata (Crocker). W. J. Oliver.—p. 400.
Some Unusual Forms of Recklinghausen's Disease. L. Savatard.—p. 414.

British Journal of Ophthalmology, London

15: 433-480 (Aug.) 1931

Discussion on Etiology of Trachoma with Especial Reference to Bacterium Granulosis (Noguchi). R. P. Wilson.—p. 433.
*Ocular Complications of Acne Rosacea. J. H. Doggart.—p. 446.
Observations on Treatment of Orbital Osteoma with Report of Case. N. Patterson and H. Cairns.—p. 458.
Embolism of Arteria Centralis Retinae. N. F. Bey.—p. 467.

15: 481-544 (Sept.) 1931

Results of Ophthalmic Operations. T. H. Butler.—p. 481.
Royal Westminster Ophthalmic Hospital and Its Staff in the Past. A. Caddy.—p. 498.
Ophthalmoscopic Evidence of Death. N. Pines.—p. 512.
Rapid Interstitial Degeneration of Cornea Following Choroidal Hemorrhage. E. A. Seale.—p. 514.
Blindness of Tobit. E. Thomson and R. R. James.—p. 516.
Iodine in Treatment of Trachoma. J. Neumann.—p. 518.

Ocular Complications of Acne Rosacea.—Doggart states that by reason of its capacity to produce keratitis in a small proportion of cases, acne rosacea may bring about serious disability. Keratitis in this disease causes repeated attacks of pain in the eyes, and endangers clear vision. It is exceedingly difficult to cure and may be almost impossible to relieve. If one system of treatment fails, others should be tried in order to shorten the attacks and to increase the intervals of quiescence. A permanent cure is not claimed in any single instance. Treatment by ultraviolet or roentgen rays offers a chance of temporary improvement when simple remedies have produced no response.

British Journal of Radiology, London

4: 365-420 (Aug.) 1931

Secondary Radiation Therapy: Part I. Physical Aspects. W. V. Mayneord.—p. 369.
Fixation of Iliac Colon by Acquired Bands: Radiologic Demonstration. A. C. Jordan.—p. 387.
Limitations of Single-Valve Unit. W. E. Schall.—p. 391.
Gaiffe Milliampere-Second Relay. A. C. Gunstone and E. J. W. Watkinson.—p. 395.

British Medical Journal, London

2: 283-330 (Aug. 15) 1931

Some Recent Policies Regarding Particular Diseases. G. Buchanan. —p. 283.
*Late Results of Operative Treatment in Toxic Goiter. C. S. D. Don. —p. 287.
Treatment of Carcinoma of Esophagus. E. M. Woodman.—p. 290.
Postmortems: Their Object and Performance. E. F. Hoare.—p. 292.
Public Health Problems Attendant on Air Travel. A. Massey.—p. 296.
Prominent Heel. P. B. Roth.—p. 298.

Late Results of Operation for Toxic Goiter.—Don gives the details of forty-two cases of toxic goiter in which operation was performed and describes the method of examination. From his observations he concludes that the disappearance of exophthalmos does not of necessity follow the complete relief of hyperthyroidism, yet a diminution of toxicity is usually followed by an improvement in this sign, which may disappear completely in patients whom one regards as cured. Exophthalmos is likely to persist in those cases in which the metabolism has not dropped to within normal limits. Nervousness is invariably improved by a successful operation, but the patient may continue to be nervous in spite of a normal metabolic rate. The majority of patients gain weight after operation, yet there are occasional cases in which an otherwise successful result is not accompanied by any increase and this is seen even in a patient in whom there was a considerable loss of weight before operation. Failure to gain weight is occasionally associated with glycosuria, which is sometimes seen in exophthalmic goiter, and may become more severe after operation. Relief of hyperthyroidism and a lowering of the metabolic rate to normal limits usually follow a subtotal thyroidectomy: there are cases in which the metabolic rate remains above normal limits in which no increase of thyroid tissue can be made out and in which no focus of sepsis can be discovered in any part of the body; worry and too little leisure are probably the factors that prevent a good result in these cases. The removal of one lobe is followed by improvement, and three of the author's patients were types with exophthalmic goiter in whom relief of hyperthyroidism has followed this operation. A satisfactory result has also followed ligation in two cases, and it will be readily understood that the improvement which ultimately followed was the cause of the complete operation not being undertaken at a later date. Ligation alone is not regarded as a curative measure, and while it is of interest to note that a normal metabolic rate can follow this simple procedure, it is probable that the operation had little effect on the ultimate outcome. If the clinical condition of the forty-two patients, their ability to do work, and the rhythm and rate of the pulse are considered in conjunction with observations on the basal metabolic rate, the result of operative treatment has been good in twenty-eight cases and improvement in nine, while in five the operation has been of little value.

Indian Journal Medical Research, Calcutta

19: 1-352 (July) 1931

Researches on "Stone": IX. *Studies in Calcium and Phosphorus* Metabolism. S. Ranganathan.—p. 1.
Id.: X. Cattle Stone. S. Ranganathan.—p. 49.
Id.: XI. Effect of Milk in Preventing Formation of Calcium Stones in Urinary Tract of Albino Rats. R. McCarrison.—p. 51.
Id. XII. Relative Importance of Vitamin A, Radiostoleum, Cod Liver Oil and Sodium Phosphate in Preventing Formation of Calcium Stones in Urinary Tract of Albino Rats. R. McCarrison and S. Ranganathan. —p. 55.
Experimental Production of Gastric Ulcer in Albino Rats. R. McCarrison. —p. 61.
Urinary Excretion of Iodine by Goitrous and Nongoitrous Persons in Gilgit: II. R. McCarrison and G. Sankaran.—p. 67.
Iodine Content of Thyroid Gland in Guinea-Pigs Fed on Scorbutic Diet. G. Sankaran.—p. 71.
Basal Metabolism of South Indian Women. E. D. Mason and F. G. Benedict.—p. 75.
Phlebotomus Stantoni Newstead, 1914, and Some Other Siamese Sandflies. J. A. Sinton.—p. 99.
Notes on Some Indian Species of Genus Phlebotomus: XXIX. Phlebotomus Arboris N. Sp. J. A. Sinton.—p. 107.
Effect of Intravenous Injections of Quinine on Electrocardiogram in Man. T. A. Hughes.—p. 113.
Effect of Emetine on Blood Sugar. N. K. Basu.—p. 121.
Preliminary Observations on Influence of Different Concentrations of Hydrogen Ions and Temperatures of Water on Mosquito Larvae (Anopheles Subpictus). H. S. Pruthi.—p. 131.
Behavior of Bacteriophage Present in Raw Water in Process of Sand Filtration. A. D. Stewart and S. C. Ghosal.—p. 137.
Preliminary Observations on an Acid-Fast Organism Isolated from Human Leprous Lesions. J. M. Henderson.—p. 145.
Potency of Time-Expired Antivenomous Serum Stocked Under Ordinary Conditions of Storage at Central Research Institute, Kasauli. G. C. Maitra and M. L. Ahuja.—p. 155.
Note on Probable Causes of Unpleasant Reactions Following Prophylactic Cholera Inoculation, with Especial Reference to Certain Avoidable Factors. G. C. Maitra and M. L. Ahuja.—p. 159.
Absence of Malaria in Salt Water Lake Basin. M. O. T. Iyengar.— p. 163.
Note on Two Intestinal Protozoa of Indian Mongoose. R. Knowles and B. M. Das Gupta.—p. 175.
Indian Ephedras: Their Chemistry and Pharmacology. R. N. Chopra, S. Krishna and T. P. Ghose.—p. 177.
Notes on Some Indian Mosquitoes of Subgenus Stegomyia, with Descriptions of New Species. P. J. Barraud.—p. 221.
Basal Metabolism of Prisoners of District Jail, Lucknow (United Provinces of Agra and Oudh). N. D. Banerji.—p. 229.
Modification of Zondek-Aschheim Test for Pregnancy with Reference to Hormone's Effects on Immature Male Rats. Dharmendra.—p. 239.
Studies in Gastric Secretion: Part I. S. L. Bhatia, H. S. Patel and J. D. Dundas.—p. 259.
"Lacto-Chloral": New Clearing and Mounting Medium for Rapid Observations of Microscopic Structures of Small Insects. S. Mukerji.— p. 281.
Distribution of Antimony in Body Organs. T. C. Boyd, L. E. Napier and A. C. Roy.—p. 285.
Epidemiologic Investigation of Kala-Azar in Rural Area in Bengal. L. E. Napier and C. R. Das Gupta.—p. 295.
Mathematical Analysis of Dr. Napier's Statistics of House Infection in Kala-Azar. W. O. Kermack and A. G. McKendrick.—p. 343.
Transmission of Kala-Azar Through Phlebotomus Argentipes by Oral Route. H. E. Shortt, R. O. A. Smith and C. S. Swaminath.—p. 351.

Irish Journal of Medical Science, Dublin

67: 289-336 (July) 1931

Preliminary Note on Intravenous Treatment of Pneumonia. R. V. Murphy.—p. 289.
Case of Acute Lymphatic Leukemia. H. Moore and W. R. O'Farrell. —p. 322.
Notes on Case of Spontaneous Rupture of Spleen. S. Pringle.—p. 329.

Journal of Laryngology and Otology, Edinburgh

46: 521-588 (Aug.) 1931

Congenital Abnormalities at or Near Upper End of Esophagus. A. B. Kelly.—p. 521.
Obstruction at Upper End of Esophagus. D. R. Paterson.—p. 532.
Injuries of Ear Arising from Fractures of Skull. E. D. D. Davis.—p. 536.

Journal of Neurol. & Psychopathology, London

12: 1-96 (July) 1931

Effective Nature of Illusion and Hallucination: Part II. Eidetic Imagery. E. Miller.—p. 1.
Hyperventilation Experiments During CO_2 and O_2 Inhalation in Patients with Convulsions. M. Fog and M. Schmidt.—p. 14.
Dissociation of Voluntary and Emotional Movements of Face with Especial Reference to Emotional Paresis as Physical Sign. I. M. Allen.—p. 24.
Study of Phobias. H. A. Paskind.—p. 40.

Journal of Physiology, London

72: 377-466 (Aug. 14) 1931

Sensory Discharges in Single Cutaneous Nerve Fibers. E. D. Adrian, M. Cattell and H. Hoagland.—p. 377.
Response of Tactile Receptors to Intermittent Stimulation. M. Cattell and H. Hoagland.—p. 392.
Modified Krogh's Bicycle Ergometer. J. McCall and A. R. Smellie. —p. 405.
Effect of Some Factors on Blood Sugar of Embryo Chicks. G. Vladimirov.—p. 411.
On Existence of Most Efficient Speed in Bicycle Pedalling and Problem of Determining Human Muscular Efficiency. R. C. Garry and G. M. Wishart.—p. 425.
Energy Liberated in Total Exhaustion of Frog's Muscle. K. Hukuda. —p. 438.

Journal of Tropical Medicine & Hygiene, London

34: 261-284 (Aug. 15) 1931

Undulant Fever Due to Brucella Abortus in Kenya Colony. N. P. Jewell.—p. 261.
Intensive Antimonial Treatment of Kala-Azar. P. Brahmachari and U. Brahmachari.—p. 263.
Use of Kurchi Alkaloids in Treatment of Amebiasis. A. R. Majumder. —p. 265.
Some Aspects of Colon Group of Organisms, with Especial Reference to Water Supplies of Trinidad. J. L. Pawan.—p. 267.
Minor Tropical Diseases. A. Castellani.—p. 274.

Lancet, London

2: 333-384 (Aug. 15) 1931

*On Vaccine Therapy and Immunization in Vitro. A. Wright.—p. 333.
Pulmonary Artery Impression on Esophagus. J. Parkinson and D. E. Bedford.—p. 337.
*On Prevention of Malaria with Plasmoquine. S. P. James, W. D. Nicol and P. G. Shute.—p. 341.
*Tourniquet Paralysis: Plea for Extended Use of Pneumatic Tourniquet. N. L. Eckhoff.—p. 343.
Anesthesia in Second Stage of Labor in Primiparas. Jane King and Joyce Morgan.—p. 346.
Unusual Case of Hodgkin's Disease. J. I. Sapwell.—p. 347.

Vaccine Therapy and Immunization in Vitro.—Wright calls attention to the fact that patients suffering from lupus and generally from strictly localized forms of tuberculosis unaccompanied by constitutional disturbance have a low opsonic index to tubercle bacilli. The phenomenon is clearly not one of the same order as the negative phase, for negative phases supervene not on minimal autoinoculations, such as can here come in question, but only on large inoculations or autoinoculations. Further, a negative phase is practically always followed by the response in the form of a positive phase, and the indexes of these patients remain, as can be inferred from the fact that their tuberculo-opsonic indexes are uniformly low, chronically below standard. This point finds its parallel in the results obtained by the inoculation of the blood with minimal quanta of vaccine. When minimal quanta of living bacteria are implanted into the blood on the one hand and serum on the other, more develop into colonies in the blood than in the serum. The same thing may be seen when the serum of bloods which have been treated with minimal quanta of vaccines are tested for bactericidal power by implantation with staphylococcus. Such serums are often found to furnish a better culture medium for staphylococcus than the control serum. And, again, the addition of minimal quanta of vaccine to a phagocytic mixture often lowers the phagocytic index.

Prevention of Malaria with Plasmochin.—James and his associates describe an experiment which proves that plasmochin effectively prevents mosquito-borne malarial infection among a group of healthy individuals who take the prophylactic doses. Quinine lacks this remarkable property. The successful result in the authors' test was obtained by taking 0.02 Gm. on the day before infection and the same dose thrice daily on the day of infection and on the five following days; but somewhat smaller doses taken over a shorter period are equally effective. The next step should be to ascertain whether the preparation is effective when taken only once daily, and, if so, what may be the smallest daily dose which will prevent malarial infection in persons who are bitten by infected mosquitoes twice or thrice weekly over a prolonged period.

Tourniquet Paralysis.—Tourniquet paralysis is a sufficiently common complication of operations on the arm and hand to warrant the careful consideration of every surgeon who is in the habit of operating on the limbs, yet Eckhoff was unable to find any reference to the condition in the English literature, and only two short articles in the French. There are several possible factors in the causation of this calamity. It is difficult, at the outset, to assess the importance of the mere anemia induced by the tourniquet on the nerves themselves. From knowledge of the sensitiveness of certain nervous structures to anemia, paralysis of the nerves might be expected to follow at once on the interruption of their blood supply. Yet it is remarkable how little all the tissues of the limb—the nerves included—are affected in the vast proportion of cases in which a tourniquet is used. As far as can be determined, the function of these structures is usually unimpaired by interference with their blood supply for relatively long periods. It seems almost certain that the paralysis following the use of a tourniquet is due to the effect of the direct pressure of the encircling band on the nerves, pressing them against the bone, and not to any extent to the effect of a simple anemia. This is borne out by the peculiar sensitiveness of the radial nerve, fitting in so well with anatomic considerations and so difficult to explain by any vascular process. No effort is too great in the prevention of this condition. It is not the purpose of the author to decry the tourniquet but rather to stimulate the use of the pneumatic tourniquet. The main thing at fault with the tourniquet in common use is the complete inability to control the pressure applied. This is true also of the pneumatic tourniquets on the market, but there is now a simple instrument to be found everywhere in the aneroid sphygmomanometer of the Tycos pattern. This is applied to the arm, with the dial and rubber bulb pointing proximally. It is well to include the mass of the deltoid muscle or, if the operation is on the hand, to place the armlet around the mass of the forearm muscles. It can be used equally well in the leg. A pressure of some 20 mm. above arterial pressure ought to be sufficient, but the author has generally used a pressure ranging between 160 mm. (for young people) and 200 mm. (for old people). The tourniquet may be used in conjunction with an expression bandage (Esmarch's or Martin's) applied from the distal extremity of the limb, or alone, after simple elevation of the limb for a minute or two. In any case it is placed in position before the commencement of the anesthetic (thus saving the anesthetic time) and inflated immediately before the operation is to begin. In an emergency it may be controlled by the anesthetist, though obviously, as a rule, its care is best left to some other assistant. In operations for sepsis in the hand it is invaluable, and, as its application is so simple, no operation of this sort should ever be undertaken without its aid. In these instances a preliminary expression bandage is obviously contraindicated, and if the tourniquet is inflated sharply, with the arm elevated, there is a trivial venous oozing on the first incision, which rapidly gives place to a bloodless field. There is occasionally a slight leak in the instrument—in the valve at the air inlet near the rubber bulb. A light intestinal clamp or a pair of sponge holding forceps applied to the afferent tube, leaving the dial in free communication with the rubber armlet, is usually sufficient to check this. It is well, however, to request an assistant to watch the dial occasionally and inflate from time to time if necessary. A linen bandage applied over the armpits helps to keep this firm. During five years the author has used this tourniquet for every operation on the forearm and hand, without regret and without any complication. It would be impossible to estimate accurately the number of operations of this sort he performed in the period, but it must total many hundreds. It would include many operations for sepsis in the hand (always a deliberate dissection), and many for suture of tendons and nerves, and multiple lacerations of the hand and fingers (often tedious and slow). A tourniquet paralysis should never occur if only a moderate and controlled encircling pressure of this sort is used.

Medical Journal of Australia, Sydney

2: 153-186 (Aug. 8) 1931

Tuberculosis in Australia. · J. H. L. Cumpston.—p. 153.
Pulmonary Tuberculosis and Notification. F. S. Hone - p. 163.
Home and Institutional Treatment of Pulmonary Tuberculosis from Point of View of Public Health. S. Gillies.—p. 166.
Some Observations on Contact Work in Tuberculosis Bureau. J. B. Ferguson and H. M. James.—p. 169.

2: 187-220 (Aug. 15) 1931

Medicolegal Difficulties Following Bone and Joint Injuries Legal Aspect. R. M MacKay.—p 187
Radiography and Medicolegal Cases. J. G. Edwards.—p. 194.
Estimation of Lead in Egg of Domestic Hen. W. B. S. Bishop —p 197.

Practitioner, London

127: 225-320 (Aug.) 1931

Chemotherapy in Cancer. W. B. Bell.—p. 225.
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Importance of Laryngoscopy in Diagnosis of Pulmonary Tuberculosis. R. S. Stevenson.—p. 264.
Concealed or Unobserved Mastoiditis. R. Warren —p. 268.
Mastoiditis, Its Diagnosis and Treatment H. N. Barnett.—p. 276.
Speech Disturbances in Cases of Parkinsonism. E. Stolkind.- p 285.
Fat Children. W. F. Christie.—p 291.
Enterospasm, Spastic Colon, or Tonic Hardening of Colon T. S. Wilson.—p. 298.
Some Clinical Observations on Cancer. W. B. Cosens.—p 308.

South Africa M. Assn. Journal, Cape Town

5: 441-476 (July 25) 1931

Malaria in the Union: Report on Investigation into Malaria in Union of South Africa, 1930-1931. H. H. Swellengrebel.—p. 443.
Observations, Dermatologic and Other, in New York City. Eva Bimon. —p. 457.
Urology in Berlin. E. B. Fuller.—p. 459.
Trigeminal Neuralgia: New Operation with Report of Case. A. Radford.—p. 461.

Tubercle, London

12: 529-576 (Sept.) 1931

Stereoscopic and Postural Radiology of Chest. P. W. Edwards.—p. 529.
Radiostereoscopy of Chest. J. B. Christopherson.—p. 532.
Steroscopic and Postural Radiology of Chest. L. B. Stott.—p. 539.

China Medical Journal, Shanghai

45: 703-814 (Aug.) 1931

". . ., But Unfortunately the Patient Died": A Study of One Hundred and Twenty-Six Postoperative Deaths at University Hospital, Tsinan, Shantung. P. B. Price.—p. 703.
Outpatient Work on One of Pescadore Islands. R. H. Mumford.—p. 737.
Thallium Acetate as Depilatory. L. F. Heimburger and C. C. Yiu.—p. 742.
Dick Test on Chinese Students in Shanghai. D. G. Lai.—p. 749.
Diagnosis of Obscure Fevers in South China. W. B. McClure.—p. 758.

Japanese Journal of Experimental Medicine, Tokyo

9: 333-401 (Aug. 20) 1931

Physical and Chemical Properties of Bacteriophages. K. Muramatsu. —p. 333.
Studies on Generation of Bacteriophage, Especially Paratyphosus A Phage. T. Yoshizumi.—p. 343.
Supplement to Knowledge of Bacteriophage Active for Cholera Vibrio. T. Yoshizumi.—p. 353.
Criticism on Specificity of Bacteriophage. T. Yoshizumi.—p. 359.
A Mucoid Colony Bacillus ("Miyata" Strain) Belonging to Paracolon Group: Its Immunity Reactions. S. Yasuda.—p. 365.
Pathogenesis of Botulism: Experimental Study. Y. Kudo.—p. 373.
Experiment on Sterilization of Oysters by Chlorine. Y. Yasukawa.—p. 385.

Annales de l'Institut Pasteur, Paris

46: 579-690 (June) 1931

Report of Ukrainian Commission for Study of Vaccination of the New-Born with B C G. B. Jakhnis and S. Chagalova.—p. 579.
Action of Acetone Extracts of Tubercle Bacilli on Pathogenic Properties of Filtrable Elements of Virus of Tuberculosis. L. Nègre and J. Valtis.—p. 587.
Technic of Obtaining Filtrates Containing Filtrable Elements of Virus of Tuberculosis. C. Ninni.—p. 598.
Effects of Repeated Reinoculations of Guinea-Pigs with B C G. L. Balozet.—p. 604.
Twort-d'Hérelle Phenomenon and Bacteriophagia. F. d'Hérelle.—p. 616.
Idem. A. Gratia.—p. 619.
Staphylococcal Bacteriophage. A. Gratia.—p. 622.
Infectious Agent in Schlammfieber. S. Tarassoff.—p. 635.
Treatment of Bacterial Infections: Vaccine Treatment and Immunization in Vitro. A. E. Wright.—p. 639.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 1031-1121 (June 22) 1931. Partial Index

*Effect of Hyperthermia on Asthmatic Crises in Adults. Pasteur Vallery-Radot and G. Mauric.—p. 1046.
Congo Red Test in Diagnosis of Amyloidosis. M. Labbé, R. Boulin, L. Justin-Besançon and Zamfir.—p. 1092.
*Nodular Pulmonary Cancer Secondary to Cancer of Breast. Plazy, Gouriou and Germain.—p. 1100.
Inefficacy of Arsphenamines and Bismuth in Late Preventive Treatment of Parenchymatous Neurosyphilis. A. Sézary.—p. 1109.

Effect of Hyperthermia on Asthmatic Crises.—Pasteur Vallery-Radot and Mauric state that it is a well known fact that asthmatic crises disappear in the course of a fever. From their studies of the effect of fever on forty-five asthmatic persons they conclude as follows: Both natural and artificially produced hyperthermia arrests in the majority of cases the subintrant attacks of asthma in adults. Natural hyperthermia may suppress the crises for a long time after the cessation of the fever, whereas the effect of artificially produced hyperthermia is always limited. The favorable action of the fever is not produced unless a certain degree of temperature, which varies with each person, is reached.

Cancer of Lung.—Plazy and his collaborators report a case of cancer of the lung secondary to a cancer of the right breast which developed on an old war wound. They state that the pulmonary signs that were observed in this case suggested pulmonary sclerosis of a tuberculous nature. However, the negative examinations of the sputum and the comparison of the clinical and roentgen examinations permitted one to eliminate this hypothesis and to consider the possibility of a nodular cancer of the lung. The presence of adenopathies as well as of the painless "nodule" of the right breast treated previously with roentgen irradiations seems to confirm the diagnosis.

Journal de Radiologie et d'Electrologie, Paris

15: 319-408 (July) 1931

*Treatment of Poliomyelitis. L. Delherm.—p. 321.
Roentgen Irradiation of Suprarenals in Dry Gangrene. A. Zimmern, J. A. Chavany and*R. Brunet.—p. 327.
Roentgenography of Petromastoid Region. Maingot, Moret, Sourice. —p. 332.
Roentgenography in Ethmoid Lesions. G. Chaumet.—p. 337.
Treatment of Cutaneous Epitheliomas: Raclage, Electrocoagulation, Electrolysis and Roentgen Therapy. J. Belot.—p. 345.
Alternative Long-Period Galvanic Waves. Laquerriere, Loubier and Jaudel.—p. 361.
Electrical Treatment of Chronic Rheumatism. H. Dausset.—p. 369.
Variations in Initial Resistance of Human Body to Electric Current. A. Strohl and H. Desgrez.—p. 371.
Anencephalia: Case. C. Arif.—p. 376.

Treatment of Poliomyelitis.—Delherm believes that results in the treatment of poliomyelitis are equivocal since in many cases improvement or cure may be spontaneous. After summarizing the results in 280 cases and discussing the triad of roentgen therapy, diathermy and electrotherapy, the author concludes: 1. Roentgen therapy is a reasonable treatment at the beginning of the disease or when there is no destruction. It is preferable in the milder forms of the disease. Ascending or postero-anterior electrotherapy as well as diathermy and ionization may be used with equal effectiveness. These methods assist in cellular exchange when there has been no destruction with sclerotic tissue formation. 2. In the treatment due to malnutrition and defective circulation the limbs or members, not the muscles, are to be treated. The author favors local hot baths, a sort of double walled boot filled with warm water, sun baths, infra-red baths, voltaic current, and diathermy. 3. In the excitomotor treatment of the muscles, the author recommends the galvanic current of alternating long period wavelengths with the action selective on the degenerating muscles. One must not overlook the trophic action of the long period galvanic current. Even in muscles giving a reaction of degeneration (but with conservation of excitability), one can apply an electric current interrupted with a metronome and a little later apply the faradic current in spaced or rhythmic tetanizing shocks according to the resistance in the muscles that react to the faradic current. It is the belief that ultraviolet rays influence muscular tonicity. In practice the author employs the two currents with a diathermy voltaic combinator, utilizing their double trophic action as well as generating excitomotor current during the passage of the diathermy current.

Presse Médicale, Paris

39: 889-912 (June 17) 1931

*Varicose Veins: Treatment with Injections of Glycerin. F. Maignon, C. Grandclaude and M. Lambret.—p. 889.
Chronic Cutaneous Infections. R. Sabouraud.—p. 890.
Mechanism of Icterus in Obstruction of Common Bile Duct. E. Chabrol, M. Maximin and A. Busson.—p. 892.
Terminology of Articular Manifestations. M. P. Weil.—p. 894.

Injections of Glycerin in Treatment of Varicose Veins.—Maignon and his collaborators describe their experiments on the injection of various sclerosing substances into the veins of animals. They finally selected glycerin as the most suitable because it gives the most favorable and permanent results. After comprehensive experiments on dogs the authors applied their method of treatment of varicose veins to human beings and obtained the same excellent results. They state that the treatment of varicose veins with injections of glycerin is based on two indications: (1) the use of a more sclerosing and nontoxic substance; (2) the production of the sclerosis with obliteration by means of injections that are given at intervals of from four to eight days. One should not exceed this interval because if one does the sclerosis is less marked. The doses employed should be from 5 to 10 cc. of a 50 or 75 per cent solution of glycerin in distilled water. The injection should be administered slowly and in the direction of the foot, and the operator's thumb should not be removed from above the point of injection for one or two minutes. These injections are well tolerated and do not cause local or general disorders. Of the numerous cases that they have collected, the authors cite five from old persons presenting a bad general condition and various pathologic conditions, particularly cardiac and pulmonary. However, even in these persons the results were so favorable that the authors recommend their method of treatment of varicose veins in all cases, because it is effective, harmless and simple.

39: 945-960 (June 27) 1931

*Hypotension of Cerebrospinal Fluid After Traumas of Skull. R. Leriche.—p. 945.
Do Bismuth and Arsenic Effect a Complete Cure of Syphilis. C. Levaditi and P. Lépine.—p. 948.
*Treatment in Rupture of Uterus During Labor. J. Murard.—p. 951.
Hyperpnea in Diagnosis of Localized Lesions of Nervous System. Laruelle and Heernu.—p. 953.

Hypotension of Cerebrospinal Fluid.—Leriche states that the syndrome of traumatic hypotension of the cerebrospinal fluid, to which he called attention ten years ago, has generally been considered as a negligible quantity in the complex melange of the usual cranial traumatism. It has been regarded as only a manometric curiosity of no clinical importance, prognostic value, or therapeutic significance. Among seventy-five cases of cranial traumas that the author has observed during the last ten years he found the syndrome of hypotension twelve times and each time he noted the efficacy of the treatment that he had previously recommended. The signs of a true hypotension of the cerebrospinal fluid in a case of cranial trauma are clear: only one or two drops of cerebrospinal fluid on lumbar puncture and a definite manometric hypotension (less than 10 with a Claude manometer and with the patient seated). The author discusses the symptomatology and mechanism of the hypotension in the cases he observed and reports the histories of some of them. He also presents in detail his method of treatment. He first injects from 20 to 40 cc. of distilled water subcutaneously or intravenously. If this is not followed immediately by improvement he then injects 500 cc. of physiologic solution of sodium chloride subcutaneously or intravenously. Sometimes it is necessary to repeat the injections within the next few days. One should not forget that the treatment may provoke hypertension and one must know when to stop it. If necessary one should resort again to manometry and be guided by its indications. In conclusion the author stresses the fact that the treatment of skull fractures must be individualized.

Treatment in Rupture of Uterus During Labor.—Murard reports three cases of rupture of the uterus during labor. One case, in which expectant treatment was used, ended fatally. In the other two cases, timely intervention saved the lives of the patients. If one treats the patient by the abdominal route, one may suture the tear in the uterus, perform a Porro operation or do a hysterectomy. If one uses the vaginal route, one may perform a simple tamponade or a hysterectomy. The author recommends the following prophylactic rules during labor: 1. One should not apply forceps until the dilatation of the cervix is complete. 2. When a version is performed after the bag of water has ruptured, one should always think of the possibility of a rupture of the uterus and manipulate gently. 3. After any operative procedure and before giving an intrauterine injection, one should always verify the integrity of the cervix and the lower uterine segment.

Revue Française de Pédiatrie, Paris

7: 257-400, 1931

Alsatian Epidemic of Acute Anterior Poliomyelitis in 1930. Rohmer, R. Meyer, Phélizot, Tassovatz, Vallette and Willemin.—p. 257.
Ocular Lesions During Epidemic of Acute Anterior Poliomyelitis in Lower Rhine in 1930. J. Nordmann and E. Duhamel.—p. 308.
Dehydration in Nurslings. S. E. Burghi.—p. 311.
Phonation After Staphylorrhaphy. V. Veau and Suzanne Borel.—p. 333.
Epidemiology of Occult Diphtheria in Nurslings and Frequency of Diphtheritic Otitis Media. L. Garot and J. van Beneden.—p. 343.
*Diagnostic and Prognostic Value of Examination of Sugar Content of Cerebrospinal Fluid of Children with Meningitis. T. Mogilnicki.—p. 353.
Spontaneous Typhoid. V. Mikulowski.—p. 363.
Value of Pirquet Reaction. A. Wallgren.—p. 368.
Sedimentation Reaction in Vaccination with B C G. A. Landau.—p. 374.

Sugar in Cerebrospinal Fluid of Children with Meningitis.—Mogilnicki reports the results of his observations in 217 children with meningitis, on whom 516 examinations of the cerebrospinal fluid were made. His conclusions in regard to the amount of sugar found are as follows: In the course of tuberculous meningitis there is always a marked hypoglycorrhachia. The inflammatory fluid in tuberculous meningitis has great glycolytic power. In tuberculous meningitis the amount of sugar in the blood is normal. In the purulent cerebrospinal fluid there is a diminution in the amount of sugar but it is not as pronounced as it is in tuberculous meningitis and it is not present in all cases. In cases of epidemic meningitis in which the patient recovers, the amount of sugar increases at the moment the improvement in his condition begins. In meningismus with noninflammatory fluid the amount of sugar remains normal or is increased. This fact is of great importance for the differential diagnosis between meningismus and tuberculous meningitis. From the clinical point of view the examination of the cerebrospinal fluid for sugar is of greatest value when the fluid is clear.

Revue Médicale de la Suisse Romande, Lausanne

51: 451-514 (June 25) 1931

Influence of Pitressin on Arterial Pressure. E. Thomas.—p. 451.
*Congenital Dislocation of Hip. M. C. Scholder.—p. 467.
*Treatment of Infections with Bacteriophage. A. Liengme.—p. 482.

Congenital Dislocation of Hip.—Scholder reports six cases of congenital dislocation of the hip. He states that many theories have been proposed to explain the pathogenesis of this condition. Statistical studies show that congenital dislocation of the hip is frequent in white persons but exceptional in Negroes; it never occurs in animals. There has been noted also an extreme predominance of this condition in females (seven cases in females to one in males). Heredity frequently plays a part in this condition. The author states that the following four groups of facts permit one to make a diagnosis congenital dislocation of the hip: (1) statics, (2) disturbances in function and walking, (3) pathologic changes found on direct examination and (4) roentgenograms. He states also that the results of treatment are good, provided the dislocation is reduced as soon as possible, always before the child is 4 years of age. After the age of 4, the muscular and capsular resistances increase and the reduction becomes difficult. After the age of 15, it is almost impossible. The author gives detailed case histories of his six patients and concludes by stressing the fact that a perfect result is obtained only when the dislocation is reduced at an early age and that the chances of cure diminish with the age of the person.

Treatment of Infections with Bacteriophage.—Liengme summarizes the results of his experiences in the treatment of various infections with bacteriophage. He considers d'Herelle's bacteriophage a powerful therapeutic agent in infections. The indications for its use are based chiefly on the fact that it is necessary to obtain an autobacteriophage. The best results are obtained in local infections. In the author's estimation it is an ideal method of treatment that is not accompanied by toxic action on the cells and that does not produce a reaction. Depending on the clinical aspect and the action of the bacteriophage, cure usually occurs in from one to eight days after the institution of the treatment. When large losses of substance have occurred as a result of infectious necrosis, more time is required for the closure of the wound. Nevertheless even in these cases the infection is cured. All that one has to do is to wait for cicatrization. One may employ occasionally a polyvalent bacteriophage as a preventive measure in contaminated accidental wounds and thus obtain perhaps a healing by first intention which could not be obtained in any other way. The treatment of local infections with autobacteriophage is so simple and gives such brilliant results that it deserves to be used extensively.

Annali Italiani di Chirurgia, Naples

10: 637-775 (June 30) 1931.

Technic of Plastic Surgery of Hip. L. de Gaetano.—p. 637.
Recovery from Gastric Wounds in Normal and in Sensitized Rabbits (Anaphylactic Theory of Gastric Ulcer). F. Paolucci.—p. 646.
Pathologic Changes of Meniscus. A. Turco.—p. 667.
*Causes of Death in Acute Intestinal Occlusions. C. Trinchera.—p. 682.
Tuberculosis of Mammary Gland in Relation to Trauma. M. Prati.—p. 697.
Examination of Liver Functioning by Means of Bengal Rose in Experimental Peritonitis. C. di Gioia.—p. 715.
Alkali Reserve in Surgical Infective States. F. Speciale.—p. 729.
Serous Dermoid Cyst of Scalp. A. Cardia.—p. 733.
Operative Indications in Traumatic Cerebral Compressions. O. Cantelmo.—p. 742.
Nerve Surgery in Functional Disturbances of Female Organs of Reproduction. G. Gucci.—p. 754.

Causes of Death in Acute Intestinal Occlusions.—In occlusions experimentally induced in dogs whereby the small intestine was strangulated at different levels, Trinchera carried out systematically a series of researches to determine the functioning of the liver and the kidney. From the observations made, it appears that the functioning of the two organs is seriously impaired, especially that of the liver, even in cases without necrotic parietal lesions. In all cases there was a slight hypochloridemia. The author, however, considers more plausible the theory of autointoxication as the interpretation of the mechanism of death in acute intestinal occlusions, and is inclined to attribute great prognostic value to the bengal rose test and to the xanthoproteic test, as to the outcome of an intervention in acute intestinal occlusion.

Chirurgia degli Organi di Movimento, Bologna

16: 111-206 (June) 1931

Chondrodysplasia. U. Vallebona.—p. 111.
Intraspinal Diarthro-Amphiarthrosis in First Thoracic Vertebra in Man. R. Bertelli.—p. 139.
Osteosarcoma of Vertebral Arches. R. Zanoli.—p. 142.
*Attachment of Autoplastic Grafts of Striated Muscles in Relation to Their Nervous Connections. A. Comolli.—p. 151.
Compensatory Filter for Roentgen Diagnosis. P. Ottonello.—p. 181.
Uncommon Congenital Malformations of Limbs. L. Magni.—p. 185.

Attachment of Grafts of Striated Muscles in Relation to Their Nervous Connections.—Comolli concludes from his researches that in rabbits an autoplastic graft of striated muscle tissue, applied to the muscles in the form of a flap or of an entire muscle, becomes attached. It survives, at least it survived for the period of his research, from three to five months. He found that the tissues of the graft and of the host take on intimate mutual relations, partly through the regeneration of the muscle fibers of each and partly through the formation of a cicatrix of connective tissue between the graft and the host. The graft may survive and present a fairly normal structure after three months. On suture of a nerve and fixation of the central head of a divided nerve of the graft, the latter may become rapidly innervated (in about twenty-six days or a little longer), with neoformation of the motor end-plates. If the muscle of the host has been denervated, the regenerated nerve of the graft is extended also to the muscle of the host by an extension that varies in different cases. If, however, the innervation of the host has remained intact, the regenerated nerve fibers are confined to the graft.

Pediatria, Naples

39: 681-735 (July 1) 1931

*Free and Combined Sugar in Blood of Children. A. Lucca.—p. 681.
Aseptic Puriform Meningitis. M. Prebil.—p. 696.
Pulmonary Abscess in Children and Its Treatment with Emetine Hydrochloride. F. Martillotti.—p. 707.

Free and Combined Sugar in Blood of Children.—Lucca found, in sixteen healthy children (eleven of them nurslings), that the combined sugar, fasting, ranged between 0.32 and 0.51 Gm. per thousand cubic centimeters, parallel to variations of the free sugar of from 0.75 to 1.06 Gm. Producing in five healthy nurslings a glycemic curve by the subcutaneous introduction of dextrose, the author obtained a perceptible increase of free sugar after the lapse of from ten to fifteen minutes, with return to about normal in from one and one-fourth to one and one-half hours. The combined sugar did not increase correspondingly but instead, after from ten to fifteen minutes, there was a slight absolute diminution and a greater relative diminution. If the free sugar returned to normal, also the combined sugar returned to the previous figures. In the acute diseases of nutrition (diarrhea and intoxication) there was a greater increase, the more grave the disease (up to from 1.36 to 1.41 Gm. per thousand cubic centimeters), of the free sugar and a parallel increase of the combined sugar, the increase being relatively a little more accentuated in the more grave cases. In the chronic diseases of nutrition the values of free sugar were not far from normal. Also the combined sugar remained within physiologic limits.

Policlinico, Rome

38: 909-948 (June 29) 1931. Practical Section

*Calculi of Gallbladder Complicated by Echinococcosis of Liver: Case. F. Speciale.—p. 909.
Hyperplasia of Liver in Echinococcosis of Liver: Case. M. Faberi.—p. 912.
*Echinococcosis of Spleen: Case. G. Moro.—p. 915.

38: 317-364 (July 1) 1931. Medical Section

Observations on Blood in Recurrent Malarial Infection. S. Pastore.—p. 317.
Hemoglobin Resistance in Pernicious Anemia Treated with Liver Feeding, and Its Diagnostic Value. S. Manca.—p. 330.
Albumin-Globulin Relation in Blood Serum of Persons with Nephritis. R. Galeotti.—p. 338.
Ten Cases of Acute Leukemia. M. Galli.—p. 352.

Cholelithiasis Complicated by Echinococcosis of Liver.—Speciale states that enlargement of the liver in patients living in regions in which echinococcosis is common and whose general condition is not in relation to the hepatomegaly should make one suspect the presence of hydatid cyst of the liver, as a rule localized in the posterosuperior aspect of the organ. The enlargement of the liver caused by neoplasms, amyloid degeneration or gummas is associated with rapid impairment of the patient's condition. The localization of hydatid cysts in the posterosuperior aspect of the liver is rare. When complicating lithiasis of the gallbladder, the condition is grave. There is danger of suppuration of the cyst and of its rupture into the digestive organs. In this complication the symptoms of lithiasis overshadow those of hydatid cyst, whose presence may be discovered late when the cyst ruptures. The hardness in the upper region of the liver in lithiasic patients from hydatid regions is an indication either that an hydatid cyst is present in the liver or that an hydatid cyst has ruptured into the liver, since uncomplicated lithiasis does not give this symptom. A case is reported in a girl, aged 17, in whom the hydatid cyst had a silent evolution until grave lithiasic symptoms appeared. While an operation for lithiasis was being contemplated, the patient expelled by the rectum the empty mother membrane of an hydatid cyst and hydatid fluid in the feces. The microscopic examination of both the membrane and the feces confirmed the diagnosis. The patient was in a septic condition and became worse and died. At necropsy it was found that the hydatid cyst had made a large excavation at the site of its implantation (posterosuperior aspect of the liver). Calculi were present in the gallbladder and there was a suppurative process in the liver. The cyst came out of the site of its implantation, perforated the duodenum and finally ruptured into the intestine. The anatomic diagnosis was biliary lithiasis complicating suppurative echinococcosis of the posterosuperior aspect of the liver, associated with secondary suppurative angiocholitis and diffuse suppurative hepatitis.

Echinococcosis of Spleen.—Moro reports two cases of echinococcosis of the spleen in adult women. One of the patients presented an enormous enlargement of the spleen and of the abdomen and intense eosinophilia. The pleura was also affected in the process and eosinophils were more numerous in the pleural exudate than in the blood. The author states that echinococcosis of the spleen should always be treated surgically, either by splenectomy or by marsupialization. One of the author's patients was successfully treated by splenectomy and in the other one marsupialization gave satisfactory results. Splenectomy constitutes a less aggressive treatment. Marsupialization should be resorted to in grave cases. It demands a longer postoperative care than splenectomy in order to avoid pleural, pericystic, intracystic or septic complications. One should not be, however, an absolute partisan of either operation but should use the one that seems indicated in the individual case.

Semana Médica, Buenos Aires

38: *1733-1800 (June 25) 1931.* Partial Index

Surgical and Clinical Pathology of Nervous System of Anus and Rectum. F. Zorraquin.—p. 1733.
*Robertson-Lavalle's Operation in Treatment of Tuberculous Spondylitis. C. Robertson-Lavalle.—p. 1743.
Manoiloff's Serologic Reaction for Diagnosis of Pregnancy, as Made with Parturients' Blood and with Umbilical Blood. J. A. Beruti and J. Leon.—p. 1755.
Biliary Lithiasis: Pathogenesis. M. Boix Pou.—p. 1761.
Foreign Body in Cecum of Child: Removal Through Appendix: Case. A. Olivieri Acosta.—p. 1781.
Syphilis: Treatment. F. Gerardo Russo.—p. 1782.

Robertson-Lavalie's Operation in Treatment of Tuberculous Spondylitis.—Robertson-Lavalle states that the autoimplantation of bone in tuberculous areas of bones induces a general specific humoral action by means of which tuberculous processes within or around the joints are healed. The beneficial humoral effect of the bone autografts acts also in other tuberculous foci at a distance. The method gives good results in spondylitis tuberculosa. Pains, muscular contracture, toxemia, paraplegia and cold abscesses disappear clinically if the autograft is properly placed in the hyperemic vertebra, where the tunnel for the graft should be prepared (care being taken not to pierce the purulent areas of the vertebra) and then the tunnel should be filled with a graft of normal bone 2 or 3 cm. long by 3 mm. thick, taken from the tibia. The topographic diagnosis should be made as exact as possible in order to avoid the necessity of performing a second operation. As a rule the roentgen examination made before and after the operation shows a rapid healing of the tuberculous lesions associated with remineralization of the pathologic vertebra and regeneration of the bone substance within the tuberculous lesions. However, when roentgen examination (anteroposterior and lateral views taken some days after the operation) proves that the bone implant did not perforate the hyperemic area, the patient should be operated on a second time and the bone splinter properly placed. Patients with any form of the disease and at any age should not be deprived of the benefits of the operation. They should be previously tested for syphilis and if the reactions are positive they should be treated. The last antisyphilitic treatment should precede the operation at least two months to insure the elimination of all the antisyphilitic substances, since the presence of any of them in the circulation at the time of the operation diminishes or even annuls the action of the grafts, even when they are introduced according to the proper technic. Some patients obtain better results than others depending on several factors, the principal of which are the type and evolution of the disease, the age of the patient and the presence or absence of complications such as amyloid degeneration in their organs, caused by suppurative processes of long standing, a condition of cachexia, or tuberculosis in some other organs. The operative technic should be determined by the segment (cervical, thoracic or lumbar segment) of the spine affected by the disease. The transplantation of bone is difficult in cases presenting well marked gibbosities. In children aged 3 or 4 years, complete success is obtained when the perforator is given a proper direction and carried down to the mass of the vertebra through the bony neural arches. A cartilaginous septum lies between the small mass of the vertebra and the neural arches. This septum, disproportionately large in children, must be pierced.

Deutsche medizinische Wochenschrift, Berlin

57: *1229-1270 (July 17) 1931*

Peculiarities of Action of Drug in Hyperthyroidism. H. Freund.—p. 1229.
*Cholecystographic Investigations on Functioning of Gallbladder After Operations on Stomach and Duodenum. H. Kalk and K. Nissen.—p. 1232.
Significance of Examination of Persons Living with Tuberculosis Patients for Recognition of Early Forms of Tuberculosis in Adults. J. Strasburger.—p. 1234.
Morphologic Foundation of Myogenic Cardiac Insufficiency. T. Fahr.—p. 1235. C'cn.
Technic of Duodenal Catheterization and of Karlsbad Drink Cure and Mud Packs in Diseases of Gallbladder and of Liver. M. Stern.—p. 1237.
Combination Therapy with Ecbolics. H. Wiesbader.—p. 1238.

Cholecystographic Study of Function of Gallbladder After Operations on Stomach and Duodenum.—Kalk and Nissen direct attention to the fact that following surgical treatment of gatsric and duodenal ulcers there often develop gallbladder disturbances. Formerly it was assumed that the elimination of the secretions of the liver and of the pancreas depended on the stimulation effected by the passage of the gastric contents through the duodenum. This assumption makes it appear logical that if as the result of surgical removal of a portion of the gastro-intestinal tract the food no longer passes through the duodenum, the biliary system will not function properly and gallbladder disturbances will develop. In order to determine whether this theory was correct the authors made functional tests on the gallbladder of patients who had undergone the second operation of Billroth or gastro-enterostomy. They describe the technic of the tests and then report the results, stating that an evacuation of the gallbladder takes place even when the food does not pass the duodenum but enters the jejunum directly. The evacuation reflex of the gallbladder is produced in the upper portion of the jejunum.

Deutsche Zeitschrift für Chirurgie, Berlin

231: *533-644 (July 2) 1931*

Traumatic Tetanus and Its Treatment, with Consideration of the Barrier Systems of Central Nervous System. V. Schaefer.—p. 533.
Clinical and Experimental Contribution to Peritendinitis Crepitans. P. Moritsch and A. Blau.—p. 550.
Restoration of Muscular Equilibrium in Surgical Treatment of Congenital Patellar Luxations. F. Felsenreich.—p. 559.
Tuberculous Pericarditis: Case. H. Schneider.—p. 567.
Treatment of Pleural Pulmonary Injuries. M. Ernst.—p. 578.
Successful Surgical Treatment in Pulmonary Embolism. A. W. Meyer.—p. 586.
Topographic Anatomic Investigations on Pulmonary Portion of Vagus and Bronchial Ramifications. V. Romankevič.—p. 593.
Topographic Anatomic Investigations of Sacral Portion of Sympathetic Nervous System and Its Rami Communicantes, with Especial Consideration of Their Surgical Exposure. V. Romankevič.—p. 604.
Anatomy and Surgical Treatment of Pyloric Stenosis in Nurslings. W. Noetzel.—p. 614.
Thrombophlebitis Following Appendicitis: Treatment. K. G. Katrakis.—p. 625.
Development and Cure of Unusually Large Cavity in Prostate (Prebladder). O. Hennig.—p. 630.
Relapse of Ligneous Thyroiditis. E. Traum.—p. 635.

Jahrbuch für Kinderheilkunde, Berlin

132: 129-256 (July) 1931

Exsiccosis in Acute Cerebral Disturbances in Nurslings. E. Schiff.—p. 129.
Investigations on Itch Sensation, Scratching and Pilomotor Reflex in Nurslings. D. Hartmann-Karplus.—p. 140.
Open Air Treatment and So-Called Return Home Cases in Scarlet Fever. H. Zischinsky.—*p.* 159.
*Epidemic of Septic Infection of Nasopharynx Simulating Severe, Acute Enteritis. B. Exner and H. Kotrnetz.—p. 169.
Iron Content of Blood of Nurslings. I. A. Kotikoff.—p. 180.
Permeability of Blood-Cerebrospinal Fluid Barrier for Aromatic Bodies in Acute Alimentary Disturbances of Nurslings. S. Schaferstein and S. P. Persitz.—p. 194.

Septic Infection of Nasopharynx Simulating Enteritis.—Exner and Kotrnetz describe the course of a house epidemic in a home for nurslings. Within six weeks, forty children had sore throat and severe gastro-intestinal disturbances. From the nasopharynx of the children and from the internal organs hemolytic streptococci were cultivated. A polyvalent autovaccine, prepared from the streptococci, together with streptococcal serotherapy gave favorable therapeutic results. The port of entry of the hemolytic streptococci was probably the nasopharyngeal ring. This primary focus of infection led to a general sepsis, which was nearly always localized in the digestive and respiratory tracts.

Monatsschrift für Kinderheilkunde, Berlin

50: 217-296 (July 4) 1931

Ventilation Effect of Intoxication Respiration: Pathogenesis of Intoxication in Infants. O. Berger and S. Rosenbaum.—p. 217.
*Clinical and Hematologic Aspects of Tuberculous Meningitis and Its Combat. O. Herz.—p. 237.
Special Form of Posthitis Juvenilis. K. Ochsenius.—p. 255.
Clinical Hematology During Childhood. E. Stransky.—p. 257.
Acute Aseptic Meningitis (Epidemic Serous Meningitis). O. Herz.—*p.* 233.

Tuberculous Meningitis.—Herz states that tuberculous meningitis is frequently not recognized, partly because the symptomatology as described in textbooks is what is observed in older children, in whom tuberculous meningitis is comparatively rare. Another cause of failure to recognize tuberculous meningitis is the belief that it begins slowly, whereas in fact it often has a sudden onset. Another factor that is often cited as militating against tuberculous meningitis is the absence of a tuberculous heredity; this is likewise not valid, for in many cases of tuberculous meningitis the source of infection is unknown. An absolute reliable basis for the diagnosis is the demonstration of the bacilli in the cerebrospinal fluid. However, in the beginning stage of the disease the result of the examination is positive in only about one third of the cases. In the later stages the bacilli can nearly always be demonstrated, but at this time there are also other symptoms; namely, vomiting and increased dermographism. If in addition to these signs the cerebrospinal fluid is clear, shows an increase of cells and a positive Pandy reaction, the condition need only be differentiated from encephalitis or aseptic meningitis. The frequently mentioned weblike formation in the cerebrospinal fluid is not pathognomonic for tuberculous meningitis but occurs also in other forms of meningitis. However, the decrease in the sugar content of the cerebrospinal fluid is a sign of the tuberculous form. Tuberculous meningitis generally lasts for about three weeks and the mortality is 100 per cent. The fever curve is not characteristic. Toward the end, hyperthermia is sometimes present but in some instances the temperature is below normal. The blood picture is characterized by a slight toxic granulation with slight deviation toward the left and marked granulocytosis. Tuberculous meningitis occurs most frequently during the first two years of life and especially during the months of April and May. Because of the unfavorable prognosis the main object should be prevention. In discussing the various factors that may lead to tuberculous meningitis the author points out that tuberculosis in persons who come in close contact with children is an etiologic factor, especially in small children, for statistics show that in 57 per cent of cases of tuberculous meningitis the infection was intrafamilial. Previous infectious diseases, such as measles, whooping cough and varicella, are of minor influence, but the author is convinced that the frequently indiscriminate use of quartz lamp irradiations is often an etiologic factor in tuberculous meningitis. He also recommends that tuberculous infants and children up to the age of 2 years be placed in special institutions, for if they receive proper care the tuberculosis may not be fatal.

Münchener medizinische Wochenschrift, Munich

78: 1167-1206 (July 10) 1931

Radical Treatment of Cancer of Rectum Under Influence of Electrocoagulation. Kirschner.—p. 1167.
History of Guinea-Pig Anaphylaxis and of Antianaphylaxis. R. Otto.—p. 1170.
*Simplification of Demonstration of Tubercle Bacilli by Laryngeal Smear: Its Significance for Early Diagnosis of Open Pulmonary Tuberculosis. H. Grass.—p. 1171.
Recognition of Dissimulation of Open Pulmonary Tuberculosis by Means of Demonstration of Tubercle Bacilli in Laryngeal Smear. K. Brucke.—p. 1173.
Intensification of Dietary Influence on Sympathetic Disturbances. E. Keining and G. Hopf.—p. 1174.
Chronic Polymyositis with Marked Eosinophilia and Periodically Returning Febrile Exacerbations: Case. E. Fiedler.—p. 1176.
Aspired Foreign Body Coughed Up Again After Two Days by Nursling Aged Eight Months. Büchner.—p. 1177.
Atropine Treatment in Patients with Encephalitis. E. Schenk.—p. 1177.
Indications for and Results of Roentgen Treatment in Children's Diseases. W. Birk.—p. 1179.
New Examination Chair for Gynecology, Cystoscopy and Romanoscopy. H. Gänssbauer.—p. 1182.
Treatment of Poliomyelitis and Epidemic Encephalitis and Especially Their Late Sequelae. G. Arghiris.—p. 1183.
Serum Prophylaxis of Puerperal Fever. A. Schossberger.—p. 1183.
Tuberculosis and Race. W. Nussbaum.—p. 1184.
Occupational Therapy in Pulmonary Tuberculosis by Combining Sanatorium with Agricultural Enterprise and Settlement. Schnurrer.—*p.* 1185.

Demonstration of Tubercle Bacilli by Laryngeal Smear.—Grass states that, if tuberculosis becomes malignant, softening usually sets in, which gradually leads to cavern formation with its serious results. It is therefore important to detect softening in is earliest stages. By taking a smear from the larynx this is generally possible at a time when there is not yet sufficient sputum to permit a diagnosis. The laryngeal smear is obtainable at any time. Thus one does not have to rely on the patient to send his sputum, and simulation as well as a dissimulation can be avoided. In some instances the diagnosis can be made directly from the smear; however, it is often time consuming, since, because of the small quantity, one has to work with great care. The positive results become more numerous, the test is more reliable and the method is simpler if, instead of or besides the direct demonstration, the culture method is resorted to. It is advisable that the examinations be made in laboratories.

Zeitschrift für Tuberkulose, Leipzig

61: 177-304 (July) 1931

Significance of Dose of Infection, Natural Resistance and Acquired Immunity for Development and Course of Tuberculosis. B. Lange.—p. 177.
Investigations on Causes of Lübeck Fatalities and on B C G (Rejoinder to Criticism). A. Calmette.—p. 188.
Results of Vaccination of Infants with B C G: Vaccination of One Each of Twins. B. Jakhnis and S. Chagalowa.—p. 191.
*Treatment of Pulmonary Cavities. H. Boit and H. Scholz.—p. 193.
Bilateral Collapse Therapy in Pulmonary Tuberculosis. A. Freund.—p. 203.
*How Long May a Bilateral Pneumothorax be Maintained? S. Bader.—*p. 209.*
Perihilar Auscultation Sign in Lateral Position in Beginning Pulmonary Tuberculosis (Sihle). O. Rautenberg.—p. 213.
*Tuberculosis of Bronchial Lymph Nodes in Adults. T. Hausmann.—p. 218.
First Contact Infection with Tubercle Bacilli During Childhood. K. Nüssel.—*p. 228.*
Epinephrine Curves in Tuberculous Children. A. Hecker.—p. 231.
Crusade Against Tuberculosis by Welfare Alliance in Brandenburg. W. Thonke.—p. 239.
Interruption of Pregnancy on Account of Pulmonary Tuberculosis. Schüler.—p. 243.
Comparative Investigations with Guttadiaphot and with Sedimentation Reaction in Pulmonary Tuberculosis. W. Schoene.—p. 245.
Generalization of Tuberculosis Virus in Various Methods of Infection. M. I. Aksjanzew and A. N. Krewer.—p. 251.

Treatment of Pulmonary Cavities.—Boit and Scholz advise that because of the uncertainty of spontaneous *healing* of a cavern, collapse therapy should be instituted as early as possible. In the case of a nonobliterated pleural cavity artificial pneumothorax is the method of choice, but in some cases additional interventions become necessary. If the pneumothorax is ineffective or is impossible, thoracoplasty should be resorted to. The danger of this intervention should not be overestimated. By a preliminary phrenic exeresis the number of ribs that have to be resected may often be reduced. As an independent intervention phrenic exeresis, especially in regard to its permanent action, is of little value. In order to supplement an inadequate paravertebral thoracoplasty, the authors recommend the removal of broad portions of the upper ribs and pleuropneumolysis with plombierung of the cavity. The plug (paraffin) is introduced without pressure. Plombierung is advisable also in tertiary caverns of the upper lobes with broad adhesions of the surrounding tissues, when the other portions of the lung are not involved and thoracoplasty therefore is not justified.

How Long May a Bilateral Pneumothorax be Maintained?—Bader reports the clinical history of a woman, aged 30, in whom a bilateral pneumothorax was maintained for two and one-fourth years. During the ambulatory treatment the bilateral exudate and the development of a fibrin layer over the pulmonary pleura did not receive sufficient attention. As a result of this the lungs could not completely expand when the pneumothorax was released, and an exudate developed again on both sides. This case report shows that although it is generally assumed that a unilateral pneumothorax can be maintained for about two years, this cannot be applied without reservation to a bilateral pneumothorax. For if it is a serious matter when the collapsed lung does not expand again in unilateral pneumothorax, it is much more serious if this happens in bilateral pneumothorax. For this reason it is necessary that in patients with bilateral pneumothorax careful attention be given to small exudates and frequent roentgen examinations made in order to detect early the formation of a coating of fibrin over the pulmonary pleura. As soon as the first indications for its development appear in the roentgenogram the pneumothorax has to be released immediately on that side, irrespective of the length of time it has been present. If the lung expands again satisfactorily, the other side can be carefully refilled. But if in the further course an exudate develops on this side also, the decision whether to release the pneumothorax on this side has to be based on the expansibility of the other lung. The author thinks that in most cases it will not be necessary to maintain a bilateral pneumothorax for two years. For the lung that is less seriously involved a pneumothorax of one year's duration is usually sufficient, whereas on the other side it may be maintained for two years.

Tuberculosis of Bronchial Lymph Nodes in Adults.—On the basis of his own clinical and necroscopic materials and on reports in the literature Hausmann concludes that the opinions of those clinicians who assert that caseous bronchadenitis occurs only in children and not in adults are no longer tenable. His observations indicate that caseous bronchadenitis and even total caseation of the lymph nodes occurs quite often in adults. Caseous tuberculosis of the bronchial lymph nodes is comparatively rare in manifest progressive pulmonary tuberculosis, but it is frequent in latent pulmonary tuberculosis and in patients in whom the lungs are free from tuberculosis but in whom other organs are affected with it. In such cases tuberculosis of the bronchial lymph nodes is the starting point of the generalization with or without dissemination into the lungs. In adults, tuberculosis of the bronchial lymph nodes is usually a manifestation of the primary infection continuing into adult life. In secondary reinfection phthisis, caseous tuberculosis of the bronchial lymph nodes is rare and in the primary infection in adults it is likewise rare. In order to detect tuberculosis of the bronchial lymph nodes, a small surface percussion (sort of threshold percussion) is helpful. This reveals a Koranyi dulness and a paravertebral dulness. These areas of dulness correspond to the tracheobronchial lymph nodes, which are not detectable by roentgenoscopy. Besides these areas there is an area of dulness corresponding to the hilar shadow in the roentgenogram. The latter area together with the paravertebral area of dulness makes the outline of a butterfly. The decreased resonance is caused not so much by the lymph nodes as such but rather by the complex of lymphadenitis and mediastinitis and eventually also by atelectasis of the adjoining portions of the lung.

Zentralblatt für Chirurgie, Leipzig

58: 1745-1808 (July 11) 1931

*Extirpation of Carcinoma of Rectum: Suggestions for Sacral and Abdominosacral Operation. O. Goetze.—p. 1746.
Osteodystrophia (Paget): Its Relation to Traumas. A. W. Fischer.—p. 1766.
Lead Pencil and Indelible Pencil: Different Mode of Healing into Tissues. E. Glass.—p. 1770.
Simple Procedure to Relieve Tension of Abdominal Wall in Suture of Abdominal Wall. K. Mermingas.—p. 1771.
Torsion of Pedicle of Accessory Spleen. P. Geiger.—p. 1772.
Treatment of Ischemic Muscle Contractures. G. Haberler.—p. 1774.
Radical Vaginal Operation of Vaginal Cancer with Resection of Adjoining Portion of Rectum. G. Páll.—p. 1781.
Technic of Empyema Operation. K. Walz.—p. 1789.
Exophthalmic Goiter and Blood Pressure. G. Wiberg.—p. 1791.

Extirpation of Carcinoma of Rectum.—Goetze describes the pathologico-anatomic aspects of a radically removed carcinoma of the rectum and discusses the essential requirements of a radical operation. Further he describes a new sacral method of operation. By a new way of approach from the back between the os sacrum and the fascia pelvis visceralis the peritoneal cavity is opened at both sides of the rectum. At the level of the promontory or somewhat higher the superior hemorrhoidal artery is ligated and divided and then from the promontory downward the rectum is removed. The author also discusses the anatomy of the fascia pelvis visceralis and its significance in the surgical treatment of cancer of the rectum. The abdominosacral method of extirpation in carcinoma of the rectum is so modified that by the abdominal method only the ligation and division of the superior hemorrhoidal artery is done. All other interventions are made by way of the new sacral approach.

Arkhiv Biologicheskikh Nauk, Leningrad

31: 1-160, 1931

Glass Gas Burner: New Type. J. J. Lavrinovich.—p. 5.
Helminthic Fauna in Turkomans. N. N. Stepanov.—p. 9.
Typhoid and Paratyphoid in Rabbits: Experimental Studies. A. A. Valdman.—p. 17.
Decomposition of Fats by Reduction of Sulphates by Micro-Organisms. G. Seliber, R. Katznelson and A. Sedykh.—p. 25.
Atypical Bacteria of Diphtheritic Group. K. Mouratova.—p. 33.
*Reduction in Action of Some Poisons Under Influence of Congo Red. J. R. Petrov.—p. 59.
Studies on Nitrification. A. L. Bytschkovskaya.—p. 69.
Secondary Mitogenic Radiation. A. G. Gurevich and L. D. Gurevich.—p. 85.
Influence of Light on Mitogenic Effect. A. P. Potozkaya.—p. 89.
Cellular Forms of Interstitial Tissue of Testis. A. A. Stein.—p. 103.
*Atypical Proliferations of Epithelium. V. G. Garshin and J. A. Pigalev.—p. 129.
Principal Laws of Mitogenic Excitation. A. G. Gurevich.—p. 149.

Congo Red.—Petrov states that in some of his previous researches he demonstrated that various dyes possess an influence on curare in diminishing its toxic effect. He continued his experiments on the action of congo red on curare, strychnine and cobra venom. The results obtained were as follows: If one mixes congo red with these poisonous substances there supervenes a formation of colored sediments. The fixation of poisons by the formation of sediments is probably caused by the decrease in their power, a fact that has to be admitted in spite of the chemical or physicochemical character of the reaction. The degree of diminished action of the poison is in proportion to the degree of the stability of the sediments. Sediments are formed as a result of the mixture of congo red with strychnine; they are easily decomposed in a neutral or slightly alkaline medium. The decrease in the action of the same poison was more pronounced in the author's experiments in which frogs were dipped in a solution of congo red and strychnine. The results obtained allow one to assume that in the body fluids the reaction of reduction of the strychnine action is also connected with the formation of sediments. This assumption was supported by the results of the author's experiments with curare. Indeed, the sediments that formed after the mixture of congo red with curare were in a fairly stabilized condition; they were not decomposed in a medium with a p_H from 3.8 to 9.0, contrary to the case of the sediments of a mixture of congo red with strychnine. Complete inhibition of the action of curare is observed after the mixture of curare with congo red in vitro as well as in the body fluids. Thus, the results of these experiments demonstrate that the reaction of a decreased action of strychnine under the influence of congo red is markedly reduced in the human body; this could be explained by the conditions of the mediums in the organism, which are probably unfavorable to the formation of sediments of congo red with strychnine and, therefore, for its fixation. Furthermore, under the influence of congo red even in vitro there is complete fixation of strychnine. Hence the reaction of fixation of strychnine by congo red is markedly favorable as a rule and could not be compared with that of congo red and curare. Finally, there is no decrease in the action of venom of cobra under the influence of congo red in vitro.

Atypical Proliferation of Epithelium.—Garshin and Pigalev studied the atypical proliferations of epithelium in the inflamed lungs of rabbits, provoked by injection of tar into the lung tissue. They state that the increase in the incidence of cancer of the lung called the attention of many investigators to the changes in the epithelium of the air passages, which could be considered as preliminary stages in the development of cancer. With metaplasia of the epithelium of the lung there often occurs its atypical proliferation; both these phenomena are in close interrelation, for both of them are caused by the regenerative processes. It is assumed that morphologically cancer of the lung and atypical proliferations of the lung epithelium are conditions of the same order. Numerous experiments were performed in this connection; some writers investigated the atypical proliferations of the lung epithelium when the lungs were in an inflammatory state; others produced inflammation experimentally by intrabronchial administration of hydrochloric acid. Still others used substances that were specific in provoking cancer (as tar) or atypical proliferations of lung epithelium. In their experiments the authors employed Russian tar, which was frequently tested and found to be strongly cancerigenic. They describe in detail the technic used and the results obtained with regard to the bronchial as well as the alveolar epithelium; also the importance of employing the kind of tar that acts as toxin on the system as a whole and as an agent for producing local necrosis. The authors reach the conclusion that the action of tar is a secondary one and the appearance of atypical proliferations of epithelium is not connected with the capacity of the tar to stimulate an independent growth of epithelium. The prominent atypical nature of the epithelium proliferations raises the question of interrelation between these proliferations and cancer. However, in spite of the irregularity of these proliferations and of their infiltrative growth, biologically they do not have the principal properties of a true neoplasm. It is true that these proliferations belong to the so-called regenerative group (Fischer) and that is why they could not be considered as neoplasms.

Vrachebnaya Gazeta, Leningrad

June 30, 1931, number 12, pp. 885-961

Digitalis and Morphine. Aryev.—p. 900.
Rôle of Liver in Cholesterol Content of Blood. Myasnikov.—p. 904.
*Lactotherapy in Whooping Cough. Farfell.—p. 909.
*Paris Green Poisoning. Chvorov.—p. 912.
Senile Psychosis. Galant.—p. 915.
Tuberculosis of Tongue. Melnikov.—p. 919.

Lactotherapy in Whooping Cough.—Farfell stresses the importance and fatality of whooping cough as comparable to scarlet fever, diphtheria and smallpox. Seventy-six children, aged from 1 to 4, were chosen for study. He found that 80 per cent of the patients were completely cured by lactotherapy, 7.9 per cent were helped materially and 11.9 per cent were unchanged. The milk was carefully tested and sterilized. Subcutaneous injections were given in the shoulder in daily doses of 0.5, 1, 1.5 and 1.5 cc., consecutively. The third injection gave the greater percentage of favorable results. Only seven patients showed any visible reaction at the site of inoculation and this was evident as a slight swelling with a slight increase in temperature. The monocyte count after injection in the majority of cases came down to normal or almost normal. The author advises lactotherapy in rural districts where epidemics of whooping cough are common.

Paris Green Poisoning.—Chvorov discusses an epidemic traced to wheat flour in several eastern and western sections of Siberia. Such cases of professional poisoning are often overlooked. Many physicians diagnose such cases as gastro-enteritis and colitis. During the first day the patient's condition simulates acute gastritis, during the following days, nephrosis. The disease has the appearance of acute dermatitis and eczema. As a whole the picture is similar to trichinosis. It may simulate polyneuritis. One case was diagnosed colicystitis, but later the diagnosis was changed to typhoid (temperature 39 C., or 102.2 F.). Tests for arsenic proved positive in both the urine of patients and in the wheat flour. The author stresses the importance of acquaintance with this type of poisoning.

Vrachebnoe Delo, Kharkov

14: 209-304 (March 31) 1931

Morphologic Index and Constitution. A. O. Brodsky.—p. 215.
*Biologic and Sociological Factors in Gastric Secretion. J. E. Shapiro.—p. 219.
Determination of Maximal Systole Without Instruments. B. E. Solotarewskaja.—p. 228.
Influence of Malaria on Nervous System. G. M. Melik-Allechwerdow.—p. 230.
*Hirschsprung's Disease: Two Cases. S. A. Galperin.—p. 234.
Shock at Childbirth. I. W. Popandopulo.—p. 237.
Ambard Constant in Determination of Kidney Functioning. B. D. Kukuyewitzky.—p. 240.
Disturbance in Carbohydrate Metabolism of Blood and the Curve in Alimentary Hyperglycemia in Syphilis. L. M. Markus and A. I. Einberg.—p. 244.

Biologic and Sociological Factors in Gastric Secretion.—Shapiro reports the results of a study of 519 cases of various ulcerous conditions of the stomach. The combined tests of Boas-Ewald were used to determine free acidity. Duration of the disease, age, sex and diet were considered. Differences in acidity are not due to the diseased condition only. Women have been found to have a lower acidity than men. The gastric secretion is lower in the advanced diseased conditions since the cells do not secrete as fast or as long. That rural patients had a lower acidity than urban patients was explained by differences in diet.

Hirschsprung's Disease.—From a review of the literature Galperin is inclined to agree with the recent theories on an involvement of the sympathetic and parasympathetic nervous system connected with the colon, in Hirschsprung's disease. Lumbar sympathectomies were performed in two cases reported. One operation was highly successful; the other did not result in any improvement of the patient's condition. Microscopic examination of specimens of tissue excised, however, failed to show any nervous tissue. The author concludes that the second operation was an unsuccessful gangliectomy.

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*Prophylaxis of Rickets. J. H. G. Carstens.—p. 3550.
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Edwin Smith Papyrus. J. G. de Lint.—p. 3563.
The Surgical Text of the Edwin Smith Papyrus. J. G. de Lint.—p. 3581.

Prophylaxis of Rickets.—Carstens brings out that in the Netherlands, owing to its severe climate, nearly all infants more than 3 months old need, during the winter, prophylactic treatment against rickets. Such prophylactic treatment must begin in November and should be continued until April. It may consist in the administration of biologically assayed cod liver oil, vitamin-containing preparations, and irradiation with the Hanau ultraviolet ray generator or the Philips sun lamp, once or twice a week. In using the Hanau lamp, one begins with an irradiation for a period of three minutes at a distance of 1 meter and increases the dose gradually to ten minutes, reducing the distance to 80 cm. The Philips sun lamp can be employed at a distance of 0.5 meter, at first for five minutes, but rapidly increasing the time to from ten to fifteen minutes. For infants that, for various reasons, are more in danger of getting rickets than are other children (hereditary predisposition, premature birth, underweight at birth, sufferers from exudative diathesis, children that have suffered from disorders of the respiratory tracts or from repeated dyspeptic conditions, or that live under bad social conditions) it may be necessary to increase these dosages, or to begin the treatment earlier or to prolong it.

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MENTAL HYGIENE AND ITS RELATIONSHIP TO THE MEDICAL PROFESSION *

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The mental hygiene movement was formally inaugurated in the United States in 1908. In this year, Clifford W. Beers, a young Yale graduate, published his autobiography, A Mind That Found Itself, which contained a graphic description of his treatment and his feelings during a severe and somewhat protracted psychosis from which he had only recently recovered. As a consequence of his experiences, he decided to devote his life to the amelioration of conditions of the mentally ill, and sought to establish an organization or society with this aim in view. He appealed to Adolf Meyer for a suitable name for such a society, who offered "mental hygiene" as implying amelioration as well as prevention. In 1908, Beers organized the Connecticut Society for Mental Hygiene, the preliminary prospectus containing, among other excellent plans, the following:

> The society shall exert influence to have courses in psychiatry established wherever there is a medical school, and practicing physicians shall, so far as possible, be drawn into close touch with these centers of enlightenment and with the modern hospitals which will eventually be brought under the control of our universities.

In 1909, the National Committee for Mental Hygiene was organized with headquarters in New York City as a further development of Beers' plan. It has been engaged in a variety of important work, with aims and functions as follows:

> The National Committee for Mental Hygiene, directly and through its affiliated state societies and local committees, works for the conservation of mental health; the reduction and prevention of mental and nervous disorders and defects; the improved care and treatment of those suffering from mental diseases; the special training and supervision of the feebleminded; and the acquisition and dissemination of reliable information on these subjects and on mental factors involved in the problems of education, industry, delinquency, and others related to the broad field of human behavior.
>
> The committee seeks to accomplish its purposes by stimulating research into the nature and causes of nervous and mental diseases and defects; conducting surveys and studies of mental hygiene problems; applying the knowledge gained from such studies, through education and the promotion of beneficial legislation; encouraging psychiatric social work; assisting in the establishment of child-guidance and other mental hygiene clinics; developing trained personnel; and cooperating with governmental and unofficial agencies whose work touches at any point the field of mental hygiene.[1]

In May, 1930, the first International Congress of Mental Hygiene was held in Washington, D. C., giving opportunity for the representatives of more than fifty countries to present papers and discuss topics related to the prevention of mental disease and the maintenance of mental health.

This brief historical sketch of the mental hygiene movement in the United States gives testimony to the fruitful efforts of its founder. Much remains to be done. Neuropsychiatrists have had the chief interest in the movement. The study reported here has been projected with the idea of ascertaining some of the relationships of the general practitioner of medicine to the mental hygiene movement.

Interviews have been held with 103 physicians practicing medicine and surgery within a radius of 75 miles of Albany, in order to learn something of their interest in neuropsychiatry. Except in the case of a few whose practice tended chiefly toward obstetrics or pediatrics, there were few, if any, outright specialists in the group. To the kindness and cooperation of these men I am indebted for the data contained in this study. The chief criterion for selecting these rather than other physicians was their willingness to be interviewed. About two thirds of them are graduates of the Albany Medical College, where there has been a well established neuropsychiatric tradition for about thirty years. The other third are graduates of Harvard, Johns Hopkins, Yale and other medical schools. The practice of most of them was in a town or a city, although a portion of the practice of many, and all of the practice of a few, was distinctly rural. A few had been in practice over fifty years, but the average period was about eighteen years.

The questions asked in the interviews, together with answers and some comments, are as follows:

1. *What percentage of patients that consult you would you guess have no very definite bodily disease as a basis for their complaints?*

Of eighty physicians interviewed on this subject, the range of answers was from 1 to 90 per cent, with an average of 19.7. The physicians practicing no surgery recorded distinctly higher percentages. Over three fourths of those interviewed had observed that some misfortune might cause a severe illness, such as depression with insomnia, anorexia, distress referred to various parts of the body, or the decided aggravation of an existing somatic disease. About an equal group had observed similar illnesses in other patients without any known misfortune to serve as an aggravating or etiologic factor.

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* Survey carried on in conjunction with Department of Regional Extension, Albany Medical College.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Twenty Years of Mental Hygiene, published by American Foundation for Mental Hygiene, Inc., 1930.

2. *Approximately how many patients do you send to a hospital (state or private) for nervous or mental diseases each year? (average).*

Of ninety-four physicians discussing this question, the answers ranged from none to thirty, with an average of slightly over seven. They declared that these patients required much more time than other types of patients, and many physicians were frank in declaring that their understanding of them was not as effectual as they would wish. If the physicians had an opportunity to follow the course of these cases after hospitalization as closely as they would patients with pneumonia, their knowledge of such disorders and their treatment would approximate that in other fields of medicine in a few years.

Table 1.—*Attitude of Some General Practitioners Toward Neuropsychiatric Problems*

	"No Interest"	"Little, Moderate, Casual, Slight" Interest	"Much Interested"	Total Number Interviewed
Nervous patients.....	12	55	28	95
Mental patients........	25	56	12	93
Neurologic lesions of brain, cord, nerves...	9	56	26	91

3. *To what extent are you interested in* (a) *nervous patients,* (b) *mental patients,* (c) *diseases or conditions in which the brain, spinal cord or nerves are affected?*

The answers to this question are reported in table 1. The correlation between the length of time since graduation and the interest in this special field is not pronounced. Interest seemed often to be centered about a problem in differential diagnosis, such as goiter and nervousness, gastric disease and "gastric neurosis," or heart disease and "cardiac neurosis." One can see that hitherto the major emphasis in developing the physician's concept of disease has been organic pathologic changes. Important as this is, it should not interfere with the acquisition of a broader concept including disease or distress of the person as a whole. The nervous system has not generally been given the consideration that it deserves.

4. *How often do parents consult you about the troublesome misbehavior or disobedience of their children?*

Of ninety-eight physicians interviewed, thirteen said that they were never consulted; sixty-one said that they were occasionally or rarely asked about such problems, and twenty-four said that they had frequent or many inquiries from parents about problems of this kind. It would seem that a function of child guidance has been in the hands of the general practitioner and that these men are to be credited with the early recognition of many such problems.

5. *Have you treated patients with nervous breakdowns who recovered under your care?*

Of 103 interviewed, 81 said "yes." About 90 per cent of the physicians admitted that there were patients with mental diseases in their communities who might be benefited by treatment in a hospital for mental diseases. The opportunity for physicians in private practice to learn by experience from such cases would seem to be excellent, especially if they should tackle such problems with the same zest and curiosity which the late Sir James McKenzie, a general practitioner, displayed toward cardiac disorders. It should be encouraging to remember that notable success was achieved by a general practitioner in the care of Lincoln during his melancholia and that marked preference was shown for his ministrations rather than for those of the specialist consulted during his illness.[2]

6. *What do you know about the mental hygiene movement?*

Of ninety-nine interviewed, forty-six declared that they knew nothing; forty-eight said "not much," "very little" or "only a vague idea"; while five were well informed.

7. *Has the mental hygiene movement helped you in any way?*

Thirteen answered "yes;" eight said "some," "questionable," "little"; while seventy-seven replied "no." Between one fourth and one half of those interviewed expressed a desire to know more about the mental hygiene program and stated that they felt its usefulness to them would depend on more information about it. The mental hygiene movement has doubtless helped these physicians more than they realize, but its field has not extended far enough beyond large cities and has not given as much support to the general practitioner as the movement holds in store.

8. *What has been the source of most help to you in caring for nervous or mental patients?*

The replies are given in table 2.

These efforts give excellent testimony to the resourcefulness of men not especially trained for the care of such patients.

9. *What special inquiry do you make regarding a patient's* (a) *feelings or emotions?* (b) *thoughts?* (c) *behavior?*

The answers to this inquiry were difficult to evaluate. It is safe to say that these factors are considered and estimated vaguely but not systematically by most physicians. While one might predict closely the degree of anemia of a patient by a glance at his tongue, no physician would be entirely content with such an estimate and, while one might otherwise ascertain the presence of fever, the thermometer is usually employed. Likewise, in taking the history at the bedside of patients, there is need for a more systematic review of the emotional status, the trend of thought and preoccupation, and the details of the behavior of every patient no matter what disease he may appear to have. Slight and almost negligible changes are often more important than they seem to be.

Table 2.—*Sources of Help in Caring for Patients*

	Number
(a) Help derived from contacts with state or private institutions, state department of mental hygiene, state clinics, internship in hospital for mental patients....	21
(b) Consultation by a	19
(c) Better knowledge journals, excha members of county medical society....................	10
(d) Changing the patient's environment......................	6
(e) Painstaking study of all factors in case and thus gaining confidence of patient..........................	6
(f) Physical therapy...	5
(g) Assistance of family.....................................	4
(h) Sedative drugs...	3
(i) Remove source of worry, amusement, psychotherapy....	2 each
(j) County nurse, better associates for patient, common sense, acquaintance with a physician who had a breakdown	1 each

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2. Clark, L. P.: A Psychologic Study of Abraham Lincoln, Psychoanalytic Review, Aug. 1, 1921.

From the interviews one would gain the impression that, despite large islands of lack of interest in the group interviewed, there are also opportunities, not only among the present generation of practitioners, but also those of the future, to bring about a mutual cooperation between the medical profession and the mental hygiene movement. While the mental hygiene movement touches life quite generally in such realms as religion, education and economics, it cannot be ignored that mental disease often confronts the general practitioner in its incipience, and for this reason he is peculiarly situated to render prophylaxis or first aid, as it were, and thus make a substantial contribution to mental health. His continuous and intimate contact with the children and the home gives further abundant opportunities. Much, of course, depends on the interest which his earlier training has aroused.

Because the mental hygiene movement is essentially a special aspect of the public health program, it may not be going too far astray, misleading as analogies may be, to compare it with the greater public health movement of which it is a part.[3] People have been interested in physical cleanliness for ages. They have achieved it by devious and sometimes questionable methods. Its counterpart in mental hygiene may have been the urge of the Greeks to keep their thoughts pure and to nourish their love of beauty. In the Middle Ages, quarantine was the most effective method of controlling epidemic diseases. Likewise, its counterpart has been the isolation of mental patients: earlier, as a practical measure designed merely for the protection of society; now, primarily for its therapeutic value to the patient. In modern times, knowledge of the etiologic factors in such diseases as malaria, smallpox, typhoid and diphtheria has reduced the incidence of these diseases markedly. The counterpart of this in the field of mental hygiene includes not only knowledge of infections but also information relative to human constitution, heredity, trauma, the effect of personal and social factors, recreational habits and stimuli, the wear and tear of life in consuming adaptive reserves, and the very fabric of behavior as revealed by detailed studies of children. Much fundamental research will doubtless be done in order to emphasize facts in the movement rather than theories. But the public health movement, much as it needs these facts, realizes the limitations of unapplied information; hence the widespread dissemination of knowledge by education is basic and essential. This constitutes the modern trend of the public health program. The mental hygiene movement is educating the public. It is a popular and fascinating campaign which has barely begun, and has not yet had time to make universal contact.

We must do what we can to circumvent the fulfilment of the prophecy of Walt Whitman, which is threatening us:

> Go on, my dear Americans, whip your horses to the utmost—excitement! money! politics!—open all your valves and let her go—swing, whirl with the rest—you will soon get under such momentum you can't stop if you would. Only make provision betimes, old states and new states, for several thousand insane asylums. You are in a fair way to create a whole nation of lunatics.[4]

What may be done? Every medical school should have personnel and facilities for teaching neuropsychiatry. Students should be awakened to an interest in the recoverable types and the milder psychiatric problems "going to waste" in general medical and surgical wards. We should teach students to assay the assets as well as the liabilities of patients; thus therapy often depends more on the residuum, or good qualities, than on faults or lesions present.[5] We are, as yet, far behind this ideal.[6] We have doubtless emphasized older institutional psychiatry so much in the past that students have failed in a measure to recognize the onset of diseases, have ignored or even made light of certain milder but, nevertheless, distressing syndromes. The time has long since come when men practicing medicine and surgery should be more thoroughly informed about what neuropsychiatry can offer, not so much with regard to puzzling diagnostic classification, but by giving the patient the benefit of fair and hopeful therapeutic advantages. Few realize this more than the general practitioners themselves.

The existing hospitals, state and private, might become even better centers for the dissemination of knowledge and serve as perpetual training centers for the physicians as well as the laity of the community.[7]

It should be kept in mind that the physician of the future, as the result of the growth of population, modern methods of speeding up the activities of man, and the progressive elimination of infectious disease, will have less of severe infection to treat. On the other hand, he will have more of the product of the subtle influences which society, economics, and very personal factors exert on the individual, producing syndromes sometimes closely resembling organic disease, frequently associated with it, but which are, nevertheless, disabling and distressing.

Ray Lyman Wilbur[8] in a recent address has stated it well:

> Early detection is fundamental in this field. Our youth must be better understood and better handled. We have yet to work out the methods for such detection, to train the men in them, and to train the medical profession. So far as insanity is concerned, the public is largely still in the dark ages, and the medical profession is in the twilight zone.

SUMMARY

1. The history of the mental hygiene movement in the United States is briefly reviewed.
2. The results of interviews among 103 physicians practicing medicine and surgery relative to their interest and problems in neuropsychiatry are presented.
3. There is need and desire for more knowledge of mental hygiene among these practicing physicians.
4. Mental hygiene is part of a public health movement depending on knowledge and education in which the medical profession of the future will be required to take a larger responsibility.

ABSTRACT OF DISCUSSION

Dr. Bronson Crothers, Boston: Physicians who are not specialists in mental disease are placed in a difficult position by the mental hygiene movement. Those who entered practice more than ten years ago are in a peculiarly bad way. In general they are asked to accept minor commissions in an army in which the leaders have educated the intelligent rank and file of the laity more energetically than they have physicians. One who settles down to a study of the psychiatric and mental hygiene literature of the last twenty years finds two sorts of articles:

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[3] Winslow, C. E. A.: The Evolution and Significance of the Modern Public Health Campaign, Yale University Press, 1923.

[4] Horace Traubel: With Walt Whitman in Camden (volume I).

[5] Crothers, Bronson: Mental Hygiene Problems of Children with Sensory Motor Defects, New England J. Med. **204**: 481 (March 5) 1931.

[6] Ebaugh, F. G.: Some Present-Day Trends in the Teaching of Psychiatry, J. Nerv. & Ment. Dis. **73**: 384 (April) 1931.

[7] Jackson, J. A.: The Rôle of the State Hospital in Mental Hygiene, J. A. M. A. **96**: 1000 (March 28) 1931.

[8] Wilbur, R. L.: Mental Health as a National Problem, J. A. M. A. **96**: 994 (March 28) 1931.

For specialists in mental disease there is a large scientific literature, much of it highly controversial and relatively little of it very definite. This controversial and inconclusive status is obviously correct. When one considers that psychiatry has changed from a descriptive science carried on, for the most part, by individuals whose main preoccupation was the kindly and pessimistic custody of deteriorated persons to a science led by men vividly interested in education, delinquency, sociology and other stimulating and hopeful approaches to the problem, it is no wonder that vigorous and cheerful disagreement is almost the rule. The lay and the general medical public is furnished a different intellectual fare. A genuine effort is being made to formulate statements which will convey to all intelligent people a fair impression of the present assets of the modern science of psychiatry. This effort is clearly sound. It is possible, however, to quarrel with certain efforts to arouse general interest in the whole subject. Obviously the number of inmates of custodial institutions is a matter for urgent concern. It is an easy step to assert that modern psychiatrists, with general and generous support from the community, can reduce the incidence of disorders leading to social bankruptcy or even eliminate them. The slogan "Mental disease is preventable, mental health is procurable" is an excellent one. The difficulty comes in backing up the slogan by facts. Facile analogies between mental and physical diseases are subject to the same objections. The general practitioner is admittedly a necessary element in any efficient mental hygiene program. His present lot is not a happy one. He is told what is expected of him as to results but given little information as to procedure. To my mind the greatest unsolved problem in the field of psychiatry is the psychiatric education of the practitioner. It is certainly futile to expect physicians to do good work as leaders if they are given the same information that is regarded as suitable for laymen in general. It is obviously absurd to suppose that they will all receive the prolonged training which is regarded as suitable for specialists in psychiatry. I am convinced that there is such a thing as "psychiatric intelligence," in the phrase of Dr. Esther Richards, which can be developed by general practitioners. I am not at all convinced that the most effective methods for developing it have been worked out. Two definite plans should be tried out. First, the psychiatrists should be urged to continue their efforts to teach. On the other hand, it is entirely open to any one to attempt to learn without a formal teacher. The eager and intelligent physician may find ways of selecting information and attitudes, which for him are more effective than those chosen for him. In any case a hopeful, interesting and profitable field of effort is open to the practitioner. Much has been written which suggests that the field of mental hygiene is relatively unoccupied. This idea seems to me of doubtful validity. I should think it was overcrowded. It is admittedly difficult to classify and appraise the people who are giving advice. Psychiatrists, psychologists, progressive teachers, educators of parents, informal and formal child guidance organizations are in the field already. It is, however, perfectly clear that the very confusion which now exists furnishes the best of reasons for active and persistent interest by general practitioners.

Dr. George B. Lake, Chicago: Physicians are going to have a difficult time in doing anything to popularize mental hygiene and in teaching parents so to regulate the psychic environment of their children that they may grow up into a psychically wholesome adulthood, until they educate the parents to the point at which physicians can talk about psychic disorders as freely as they talk about physical disorders. It seems to me that that education is one of the things that every physician, be he psychiatrist, pediatrician, internist, general practitioner or whatever the case may be, can be giving to the individuals with whom he comes into contact, and can be giving to his community in a thoroughly impersonal and perfectly ethical way, so as to prepare the public for the kind of things that the psychiatrists are ready to give them, in connection with the upbuilding of mental hygiene.

Dr. Tom A. Williams, Miami Beach, Fla.: I do think that it would be a mistake to endeavor to train every general practitioner as a psychiatrist; for the training requires years. Mental hygiene is not sufficiently understood by the general practitioner, the pediatrician especially. Perhaps, too, social workers are out of sympathy with the profession at large. They are willing to collaborate only with their particular psychiatrist. The solution seems to me a simple one. It is not different from that in any other medical specialty. All patients should first go to the family doctor, and he ought to know that there are certain forms of mental illness which he does not understand. He sends his patients to ophthalmologists, surgeons and pediatricians, but he does not consult sufficiently the practicing neurologist, who has approached psychiatry through medicine and neurology and who is more sympathetic to the problems of the general practitioner and pediatrician than is the man who is solely a psychiatrist. Frequent consultation with neurologic colleagues will gradually teach practitioners the kind of problems to be dealt with, and the simpler problems they will later learn to deal with themselves. In that way the profession will gradually become educated psychiatrically.

Dr. Lloyd H. Ziegler, Albany, N. Y.: Because of time limitation, I could not read some of my own comments about the results of these interviews. I know that the men who have said "no" to some of the questions about mental hygiene have been benefited probably more than they realize by the mental hygiene movement. There is a tendency in my community for certain physicians to have more interest in the psychiatric problems of patients than other practitioners. Cases are referred to them or come to them which keep this interest alive and they have developed skill in the care of such problems, though they do not profess to have special knowledge or skill in psychiatry. When these men have cases too difficult to care for with their facilities they consult neuropsychiatrists. In this way the practitioners of medicine with interest in the work may develop diagnostic and therapeutic resources and profit by the special training of the neuropsychiatrist. In the majority of communities the number of practitioners interested in such problems is too small.

ETIOLOGY OF INFLUENZA

TRANSMISSION EXPERIMENTS IN CHIMPANZEES WITH FILTERED MATERIAL DERIVED FROM HUMAN INFLUENZA *

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During the last forty years the problem concerning the etiology of influenza has passed through two definite periods. Following Pfeiffer's[1] announcement of the discovery of an organism which he believed to be the cause of influenza, numerous investigations were carried out on the isolation of this organism and these studies rapidly confirmed Pfeiffer's assertion. Thus the term "influenza," which previously had been used to describe a clinical condition, gained an etiologic significance and it was generally considered that Pfeiffer's bacillus was the causal agent of this disease.

However, more extensive investigations during the pandemic of 1918-1919 and during the succeeding epidemics have tended to cast doubt on the validity of Pfeiffer's interpretations. From a mass of conflicting reports, four schools of thought regarding the etiology of influenza have developed; one which regards Pfeiffer's bacillus as the cause, another which believes that a green-producing streptococcus is involved, a third

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* From the Department of Medicine and the Clinical Laboratory of the John J. Abel Fund for Research on the Common Cold, Johns Hopkins University School of Medicine.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Pfeiffer, R.: Die Aetiologie der Influenza, Ztschr. f. Hyg. u. Infektionskr. 13: 357-386, 1893.

which considers that a cultivable minute filter-passing anaerobic organism is related to the disease, and finally the group which believes that the etiologic agent of influenza is a true filtrable virus.

The literature covering the etiology of influenza is extensive and has been ably reviewed in English by Jordan,[2] Zinsser[3] and Olitsky.[4] In general, attempts at experimental transmission of the disease to man and the lesser apes by means of pure or mixed cultures of Pfeiffer's bacillus have been unsatisfactory. Pfeiffer's original experiments were very indefinite. Blake and Cecil[5] reported in 1920 that "*Bacillus influenzae* can initiate in normal monkeys an acute infection of the upper respiratory tract which may be complicated by acute sinusitis, tracheobronchitis, hemorrhagic edema of the lungs, bronchiolitis and bronchopneumonia. This disease appears to be essentially identical with influenza with respect to its clinical cause, symptoms and complications. . . . Although it seems reasonable to infer from the results of the experiments that *Bacillus influenzae* is the specific cause of influenza, a definite conclusion is not permissible, since it is impossible to determine whether the respiratory disease produced in monkeys is identical with influenza or merely similar to it. The experiments are advanced, therefore, as evidence in favor of the etiologic relation of *Bacillus influenzae* to influenza." Later Cecil and Steffen[6] inoculated pure cultures of virulent influenza bacilli into the throats of healthy volunteers, all of whom developed an acute afebrile disease, which, as the authors stated, was similar in many respects to influenza, "but falling short of the typical clinical picture."

During the late pandemic, Mathers,[7] Tunnicliff[8] and Rosenow[9] brought the green-producing streptococci into prominence as possible etiologic agents in influenza. In a recent monograph, Falk and his associates[10] reported that they considered peculiar pleomorphic green-producing streptococci as being "etiologically related to the influenza outbreak in Chicago in the winter of 1928-1929."

In a series of experiments extending from 1919 to 1926, Olitsky and Gates[4] have described a minute filter-passing organism isolated from Berkefeld V and N filtrates of rhinopharyngeal washings in patients ill with influenza. The actual relationship of this minute organism to the incitant of influenza is not clear and, as Gates[11] stated in 1926, " a large accumulation of observational and experimental evidence must be sought wherever available and pieced together as opportunities permit" before this relationship is settled.

The rôle played by filtrable agents in the production of disease was not well understood when the pandemic of 1889-1890 occurred, and it was not until 1918-1919 that attempts were made to demonstrate a filtrable virus in influenza. The reports of Nicolle and Lebailly[12] and Yamanouchi and his co-workers[13] are interesting. Nicolle and Lebailly were able to reproduce what they considered to be influenza in one monkey and two human volunteers by means of inoculations with filtrates of bronchial secretions obtained from individuals ill with influenza. The incubation period in all instances was five days. Yamanouchi and his associates inoculated numerous human volunteers with filtered influenzal sputum and with blood filtrates from patients ill with influenza. All the inoculated volunteers, except those who had passed through an attack of influenza prior to the experiment, developed influenza. The incubation period was from twenty-four to forty-eight hours.

During the pandemic of 1918-1919, extensive carefully controlled experiments on man were carried out by Rosenau, McCoy and their associates.[14] Attempts were made to transmit influenza to healthy volunteers by means of pure cultures of Pfeiffer's bacillus, mucous secretions from patients ill with influenza, filtrates of these secretions, direct contact of the volunteers with influenza patients, and mixed cultures of organisms derived from influenzal sources. Although these experiments were carried out in widely separated communities and under favorable conditions, uniformly negative results were obtained.

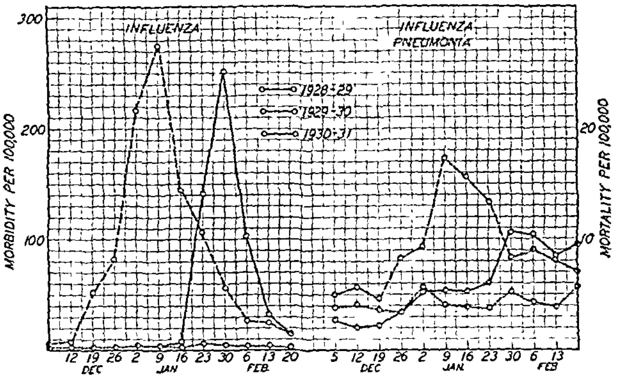

Chart 1.—Incidence of influenza in Baltimore during the winter months from 1928 to 1931, and mortality from influenza and pneumonia in Baltimore during the winter months from 1928 to 1931.

Recently Dochez, Shibley and Mills[15] in their communication on the transmission of common colds to anthropoid apes and human beings by means of a filtrable agent said: "In December, 1929, three of our animals acquired acute upper respiratory infections three or four weeks after having had colds. Clinically these infections closely resembled the influenzal type, which was then epidemic and from which our animal men were suffering. Although very slight, this evidence points to the assumption that influenza and colds are separate entities." This report, coupled with the success of the same investigators in transmitting "com-

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15. Dochez, A. R.; Shibley, G. S., and Mills, K. C.: Studies in Common Cold: Experimental Transmission of Common Cold to Anthropoid Apes and Human Beings by Means of a Filtrable Agent, J. Exper. Med. **52:** 701-716 (Nov.) 1930.

mon colds" to chimpanzees, led us to believe that the great apes might be susceptible to infection with material derived from human influenza.

Four young chimpanzees between 2 and 3 years of age were available for transmission tests. These had been isolated for two months before the onset of the influenza epidemic in Baltimore. During this period one ape had been successfully inoculated with a "common cold." The other three had remained in good health. The attendants and observers donned masks and gowns and washed their hands thoroughly before coming in contact with the animals. The effectiveness of isolation can be judged from the fact that no accidental infection occurred during the isolation period. White blood cell counts, cultures of the rhinopharynx and rectal temperatures were taken in each animal before inoculation and in three of the apes a definite base line was established prior to their infection.

The patients from whom the inoculum was obtained were selected with care. Every effort was made to study early uncomplicated influenza and in each instance the clinical course of the disease was carefully followed. Cultures of the rhinopharynx and rhinopharyngeal washings, white blood cell counts and the urine were studied and in addition numerous studies of the upper respiratory flora were made in normal individuals during the epidemic period. The throat cultures and rhinopharyngeal washings were examined especially for the presence of *Hemophilus influenzae*, *Streptococcus hemolyticus* type beta, *D. pneumoniae* and the filter-passing anaerobic organisms described by Olitsky and Gates.[4] The bacteriologic technic used for the isolation of these organisms has been described in a previous report.[16]

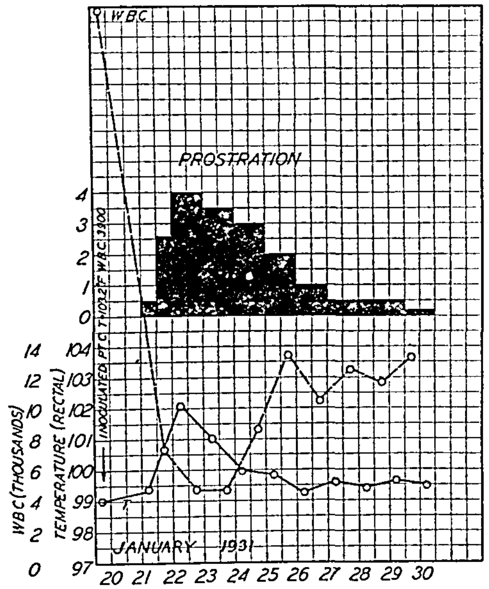

Chart 2.—Clinical course of the experimental infection in ape 1.

NATURE OF THE EPIDEMIC

The epidemic of 1930-1931 in Baltimore was explosive in type and of short duration. As is indicated in chart 1, the morbidity rate for the peak week approached that of the peak week of the epidemic of 1928-1929. However, the total attack rate was lower during the recent epidemic. The mortality rate of combined deaths from influenza and pneumonia was much lower in the epidemic of 1931 than in the epidemic of 1928-1929.

THE CLINICAL NATURE OF THE DISEASE

The diagnosis of "influenza" is uncertain because of the protean manifestations of influenza and the lack of definite etiologic knowledge. In discussing the symptoms and signs of the disease it is best to rely on typical descriptions, such as Soper's[17] observations on soldiers in American army camps during the pandemic of 1918-1919: "The leading symptoms are: severe headache; chills or chilliness; pains in the back and legs; temperature sometimes as high as 104 F.; great prostration and drowsiness. Occasionally there are nervous symptoms; sometimes, but not always, the eyes and the air passages of the nose and throat are affected; there may be gastro-intestinal disturbances. The onset is sudden."

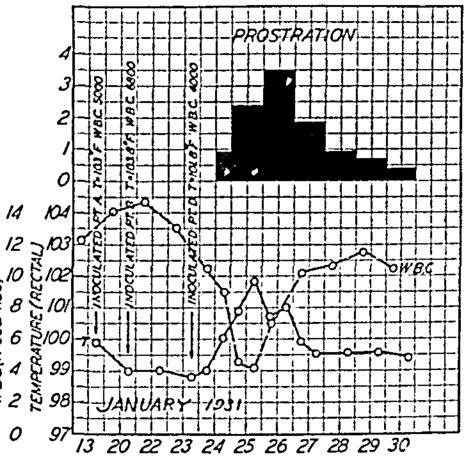

Chart 3.—Clinical course of the experimental infection in ape 2.

During the epidemic which is under consideration in this report the clinical picture of our selected patients was as follows: The onset of the disease was generally gradual, although in certain instances it was extremely rapid, occurring within a few minutes. Chills or attacks of chilliness were frequent. Malaise of varying degree was always present. Prostration varied, at times being slight and at others amounting to lethargy. Pain in the back and legs was a constant feature, and at times the pain was generalized throughout the muscles. Photophobia and lacrimation were frequent. Some of the patients complained of sore throat, others had no upper respiratory symptoms. The temperature rose as high as 104 F., and in general the pulse was relatively slow for the degree of fever. The physical examinations were essentially normal. A few individuals showed slight hyperemia and injection of the rhinopharynx, and occasionally a few râles could be heard at the lung bases. These, however, cleared with great rapidity. The urines were normal. The white blood cell counts ranged from 2,800 white blood cells to 6,800 white blood cells, with the leukopenia persisting or even increasing after defervescence. In all but one of the patients under observation, convalescence was marked by asthenia and depression out of proportion to the intensity of the initial disease, and frequently from two to three weeks elapsed before normal strength returned.

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[16] Long, P. H.; Doull, J. A.; Bourn, J. M., and McComb, E.: The Etiology of Acute Upper Respiratory Infection (Common Cold), J. Exper. Med. 53: 447-470 (April) 1931.

[17] Soper, G. A.: What is Influenza? Boston M. & S. J. 18: 635-641 (Nov. 27) 1918.

BACTERIOLOGIC FLORA IN THE RHINOPHARYNGES OF HUMAN BEINGS AND CHIMPANZEES DURING THE EPIDEMIC PERIOD

The studies of the bacterial flora in the rhinopharynx of human beings and chimpanzees during the epidemic period reveal several interesting facts, as may be observed in the accompanying table. The absence of the hemolytic streptococcus type beta and *H. influenzae* in the rhinopharynges of the individuals ill with influenza and their low incidence in normal persons is of interest since one would expect to find at this period of the year 9.9 per cent of normal persons carrying the hemolytic streptococcus type beta, and 32.8 per cent carrying *H. influenzae* in their throats.[18] Practically all the pneumococci belonged to the type IV group.

There was no difference in the rhinopharyngeal flora of the apes before or after inoculation and in general our observations confirm those of Dochez[15] that a similarity exists between the rhinopharyngeal flora in man and in chimpanzees. It is interesting to note that *H. influenzae* was not found in the apes. Gram-negative, filter-passing anaerobic organisms were isolated from cultures of the rhinopharyngeal filtrates in 61 per cent of the influenzal filtrates and in 17 per cent of the filtrates from normal persons. No qualitative difference in the anaerobic organisms from normal persons or from influenzal sources was noted. The organisms isolated during this study were those which constitute a part of the normal anaerobic bacterial flora of the rhinopharynx. *Bacterium pneumosintes* was not isolated.

TRANSMISSION EXPERIMENTS

During the epidemic period it was possible to utilize three of the four apes which had been in isolation since the middle of November, 1930. The inoculum employed was a Berkefeld W filtrate of the rhinopharyngeal washings from an individual ill with early uncomplicated influenza. In each instance the inoculum proved to be free from both aerobic and anaerobic organisms after prolonged cultivation in appropriate mediums. The apes were inoculated by the injection of a small amount of the filtrate into each nostril and into the pharynx, following which each nostril and the posterior pharyngeal wall were gently rubbed with a sterile cotton swab soaked in the filtrate. The protocols of the transmission experiments are recorded in charts 2, 3 and 4.

The initial total leukocyte counts were elevated in apes 1 and 3. This can be ascribed to the fright engendered in the animals during the first few leukocyte counts. It has been our experience that with any given animal the initial counts are always elevated unless the animal is tame and easily handled. However, as will be noted in the chart of ape 3, a base line was established before any symptoms developed. There was no constant change in the differential white blood cell count, either before or after inoculation.

One, three and two inoculations were made respectively before the animals developed symptoms and signs of the experimental disease. The inoculations were spaced at such intervals as to preclude prolonged incubation periods if our knowledge of the incubation period in human influenza is correct, and it would seem from our observations that the incubation period in apes is similar to that in the human disease. We can offer no logical explanation for the failure of the three unsuccessful inoculations. Our only index of symptoms in the experimental disease was the prostration evidenced by the affected apes. We realize that an evaluation of this symptom is difficult, but by using ape 1 as a standard we have endeavored to chart the duration and intensity of the prostration in the other animals. During the incubation period and while the febrile attack was in progress we could not detect any evidence of focal rhinopharyngeal involvement in any of the experimental animals, thus eliminating the possibility that they were suffering from mild "common colds."

A criticism frequently made of investigations concerning the etiology of influenza is that they are embarked on during an epidemic period and that, no matter how rigid the isolation of the experimental subjects, accidental infection may account for the signs observed subsequent to inoculation. With this in

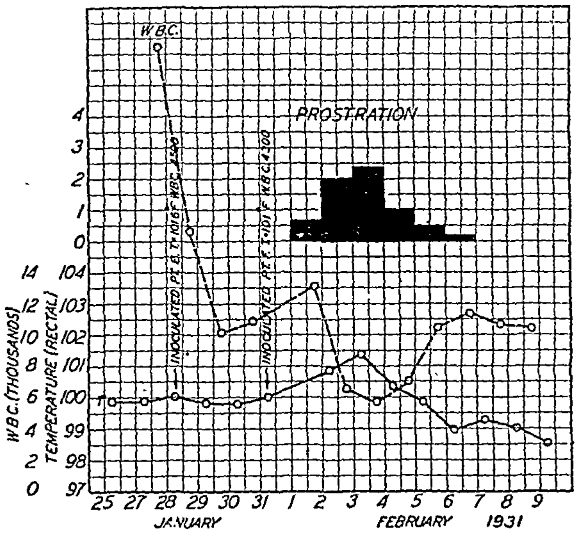

Chart 4.—Clinical course of the experimental infection in ape 3.

Comparison of Percentage Incidence of Aerobic Bacteria in the Rhinopharynx of Influenza Patients, Normal Human Subjects and Chimpanzees from Jan. 13 to Feb. 20, 1931.

									Staphylococcus							
									Aureus		Albus					
	Number of Cultures	Streptococcus				H. Influenzae	Pneumococcus	Friedländer's B.	Hemolytic	Non-Hemolytic	Hemolytic	Non-Hemolytic	Diphtheroids	Gram-Negative Cocci	Streptobacillus	B. Coli
		α	α′	β	γ											
Human subjects																
Influenza.........	21	93.8	4.7	0	95.1	0	19.0	19.0	29.6	23.7	33.3	42.8	88.8	52.3	0	0
Normal...........	81	90.1	13.5	3.7	93.8	7.4	20.9	7.4	13.5	61.7	23.4	65.4	64.1	83.2	2.4	4.9
Chimpanzees.......	61	91.8	13.1	16.3	85.2	0	13.1	29.5	16.3	67.2	11.4	65.5	75.4	75.4	6.4	16.3

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[18] Bourn, J. M.: Personal communication to the authors.

mind, we attempted to preserve influenzal material until it could be utilized in a period when influenza was not prevalent.

The method of preservation was suggested by Dr. T. M. Rivers and is described by Sawyer, Lloyd and Kitchen.[19] Rhinopharyngeal washings were obtained from a patient early in the course of typical influenza. Aerobic cultures of the washings contained alpha, alpha prime and gamma streptococci, gram negative cocci and staphylococci. Anaerobic cultures were negative. The unfiltered washings were frozen and dried and were kept in the icebox for 123 days or until May 19, 1931. On that day the desiccated material was dissolved in 6 cc. of yeast infusion broth and was inoculated into the rhinopharynx of ape 4.

Twenty-seven hours after inoculation, ape 4 showed evidences of prostration and a distinct elevation in temperature. The elevation in temperature persisted for three days. The total leukocyte count reached a leukopenic stage on the second day of the disorder and did not return to normal until the sixth day. Prostration was moderately severe throughout the febrile period. The aerobic flora in the rhinopharynx of this ape did not change during the disorder. With the return of the temperature to normal, convalescence was rapid.

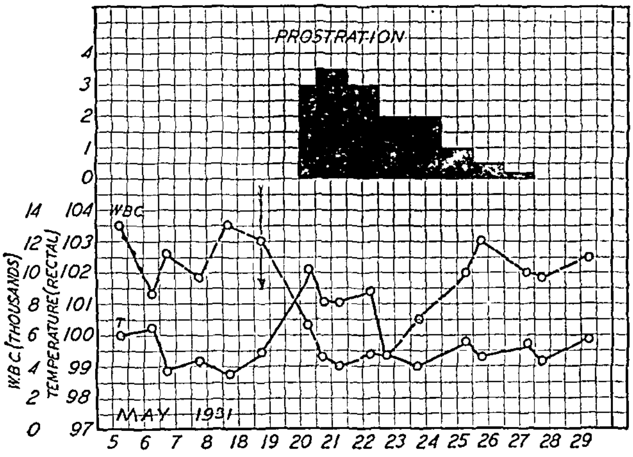

Chart 5.—Clinical course of the experimental infection in ape 4, inoculated with dried influenzal material. The arrow indicates the time at which the ape was inoculated with the desiccated material

COMMENT

An epidemic of acute respiratory disease was present in Baltimore during the months of January and February, 1931. The clinical nature of the disease corresponded to that of uncomplicated influenza as described by numerous observers during the pandemic of 1918-1919. The attack rate of the present epidemic corresponded to the attack rate of the influenza epidemic of 1928-1929, but the mortality from influenza and pneumonia was lower than in 1928-1929. This may be explained by the fact that during the epidemic under consideration the low incidence in the rhinopharynx of certain potentially pathogenic bacteria such as *H. influenzae* and hemolytic streptococcus type beta was a striking feature. While the incidence of *D. pneumoniae* was relatively high, most of the isolated strains fell into group type IV. These observations are to be contrasted with the generally reported high incidence of these organisms during the pandemic of 1918-1919. Studies designed to investigate the anaerobic filter-passing flora of the rhinopharynx show that, aside from a higher incidence of infestation, no difference could be distinguished in the basic flora of individuals ill with influenza and of normal subjects. *Bacterium pneumosintes* was not isolated.

The apparent susceptibility of the chimpanzee to human influenza and the fact that four animals were available led us to use apes as the test subjects. Three animals that received intranasal and intrapharyngeal inoculations with bacteria-free filtrates of the rhinopharyngeal washings from individuals ill with early uncomplicated influenza developed febrile disorders within from thirty-six to forty-eight hours after inoculation. These disorders were characterized by fever, moderate to marked prostration, and a leukopenia. The intensity and duration of the prostration seemed to be out of proportion to the febrile reaction. None of the animals developed signs of focal respiratory involvement, and the basic aerobic bacterial flora of the rhinopharynx did not change during the disorder. After a period of one month all three animals were reinoculated with filtered influenzal material without producing signs or symptoms.

A fourth ape was inoculated in May with influenzal material which had been preserved in the icebox for 123 days. A typical infection characterized by fever, leukopenia and prostration followed the inoculation, after an incubation period of twenty-seven hours. This observation permits the hope that in future epidemics infectious material may be preserved for study during periods when influenza is not prevalent.

Recently Dr. A. R. Dochez[20] communicated to us the results of his observations on the experimental transmissions of influenza to chimpanzees. He states: "In all we inoculated eight chimpanzees with filtered washings from typical cases of so-called influenza. None of these animals had any symptoms whatever. We did not regard the experiment as of great significance, however, in view of the fact that all of the animals were in the stage of convalescence from common colds." In the same communication he describes two transmission experiments in man which were unsuccessful.

CONCLUSION

Disorders characterized by fever, prostration and a leukopenia were transmitted to three chimpanzees by intranasal inoculation with bacteria-free filtrates of rhinopharyngeal washings obtained from individuals ill with human influenza. A similar condition has been produced in an ape during a nonepidemic period by means of an intranasal inoculation with unfiltered influenzal material which had been preserved in the icebox for 123 days. The difficulty of interpreting with complete satisfaction the observations made on the apes is obvious, and we therefore present the observed facts with the knowledge that they conform with those previously reported in man by other investigators.

ABSTRACT OF DISCUSSION

Dr. Francis G. Blake, New Haven, Conn.: The experiments of Dr. Long and his associates serve to emphasize the importance of defining what influenza is, for at present there is no general agreement as to exactly what the clinical picture of influenza is, as to exactly how much of the disease is due to secondary infection. The authors apparently minimize considerably the occurrence of respiratory symptoms as being an essential part of influenza. At least there was no evidence of inflammation of the respiratory tract in their successfully inoculated animals, and, except in a few cases, they did not observe significant respiratory symptoms in the patients during this particular epidemic. It is quite true that there is the widest variation in descriptions of the clinical picture of uncomplicated influenza with respect to the prevalence of respiratory symptoms; that is, of rhinitis, pharyngitis, laryngitis or tracheitis. Soper, for example, in describing the disease, minimizes respiratory symptoms, emphasizing the symptoms of prostration, fever and general pains. An equally competent observer, Lichty, has said that every effort was made to recognize the nonrespiratory cases, but I was unable to find a single case that did not present definite respiratory symptoms in addition to other symptoms, early or late. Consequently, it seems wisest to maintain a conservative and perhaps traditional point of view as to whether or not respiratory symptoms are part of the actual picture of the uncomplicated disease.

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[19] Sawyer, W. A.; Lloyd, W. D. M.; and Kitchen, S. F.: The Preservation of Yellow Fever Virus, J. Exper. Med. 50: 1-13 (July) 1929.

[20] Dochez, A. R.: Personal communication to the authors, March 17, 1931.

Dr. A. R. Dochez, New York: It is interesting to contrast the picture which Dr. Long and his associates have presented following inoculation of chimpanzees with bacteria-free filtrates from an individual suffering from influenza with that seen in these animals when infected with what corresponds to the common cold in human individuals. The picture is different in that with the common cold in chimpanzees there are always marked respiratory symptoms. An infection of the type of the common cold begins with stuffiness of the nose and the rapid appearance of a mucous discharge. The throat may be red and the mucous membrane swollen. Occasionally there are complications, usually infection of the paranasal sinuses. The signs of prostration and fever are never pronounced. The usual duration of the infection is from a week to ten days. The absence of constitutional symptoms is conspicuous. Prostration is never obvious; the temperature does not rise above 100.8 F. At the most there may be some loss of appetite and some lassitude. On one occasion I observed what was probably a spontaneous outbreak of influenza in our colony of chimpanzees. This occurred during the influenza epidemic in New York in 1928. In this instance the picture was quite different from that described. Prostration was marked, the animals were flat on their sides for two or three days; fever was high, 103 F., and lasted from eight to ten days. Different animals, of course, presented different clinical pictures and those with the most pronounced symptoms had bronchial pneumonia. At this time these animals, however, presented marked respiratory symptoms. Bacteriologic studies of two of the animals showed that they carried during the influenza infection both the influenza bacillus and the pneumococcus. Perhaps the pronounced respiratory symptoms were referable to secondary infections with these organisms. I should like to ask the authors whether they followed the bacteriology of the upper respiratory tract of their animals during the course of the infection. Chimpanzees infected with the virus of the common cold show interesting changes. Chimpanzees harbor a flora in the upper respiratory tract which is comparable to the human flora. All the human potential pathogens are present. These organisms may be inconspicuous during normal periods, but when the animals are infected with the virus of the common cold these pathogens at once become active and appear in great numbers and over a wide area of the upper respiratory tract. The work reported by Dr. Long and his associates is extremely suggestive and valuable. Before closing I should like to say that I have inoculated chimpanzees with bacteria-free filtrates from patients with influenza which seemed fairly characteristic of this winter's outbreak. None of these animals contracted the infection. It may be, however, that they were not in a susceptible phase at the time I inoculated them since all of them were recovering or had recently recovered from acute infection of the upper respiratory tract of the type of the common cold. These observations bring up for consideration an interesting problem concerning the nature of the virus of influenza, whether this organism is a more virulent form of the virus of the common cold or an independent virus. Future studies should now be able to decide this point.

Dr. Perrin H. Long, Baltimore: I think that Dr. Blake sounded the keynote of experimental work in influenza when he said that one must adopt a very conservative attitude because it is difficult to say that the disease produced in an animal is the same that one sees in human beings. Another important point made by Dr. Blake is the variation in the clinical picture of influenza. We felt that we were dealing with influenza as the clinical picture presented by our patients was similar to the descriptions of the early uncomplicated disease, but it certainly did not resemble certain descriptions of the grave pandemic influenza. In regard to Dr. Dochez's question, cultures of the rhinopharynx of these animals were taken daily, both before and after the inoculation. We could not determine any differences in the bacterial flora. We found, as he has already pointed out, that the flora in our chimpanzees parallels that in human beings. As shown in the second chart, this is true in the case of our animals. Dr. Dochez has told of his unsuccessful attempts to inoculate chimpanzees with influenza material when the animals were convalescing from common colds. We have attempted to produce common colds in the first three animals by means of heavy intranasal inoculations with filtered and unfiltered cold material. To date, these attempts have been unsuccessful. We cannot interpret these negative results but consider them interesting.

PHYSICAL MEASUREMENTS AND PHYSIOLOGIC PROCESSES IN YOUNG CHILDREN

SOME CORRELATIONS *

WILLIAM PALMER LUCAS, M.D.
AND
HELEN BRENTON PRYOR, M.D.
SAN FRANCISCO

For centuries men have sought a relationship between body form and function. In recent years investigators have been inclined to disregard the individual patient and focus attention on the micro-organisms responsible for his disease. But many individual differences in susceptibility remain unexplained. It is now thought that perhaps the solution of some of the problems in immunity lies in the recognition of certain anatomic and physiologic types or constitutions.

Variations in anatomic and physiologic characteristics compatible with health must be defined to establish zones of normality. Most standards of health recognize only one zone as normal. In grading the physical fitness of the children of America, one certain weight for height and age is considered normal.

Nutrition properly holds first place in judging the physical status of children. Comprehensive investigations in this field have been carried on by physicians, school nurses, dietitians and health and welfare agencies. A recent report estimates that six million of our forty-five million children are undernourished when judged by the relation of weight to age and height. This report cannot be accepted unless one accepts also one type of body build as normal for the whole nation.

At present the health records sent home with report cards from the public schools inform millions of parents in America that their children are under or over *normal* weight. For the most part, those classed overweight cause much less concern than those classed underweight. The parents of the latter children worry excessively while they impose a tremendous strain on the digestive systems of the slender children by insisting on high calory, high fat food in the hope of their children attaining normal weight.

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* From the department of pediatrics, University of California Medical School.

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* The authors are indebted to Dr. Vern James and Dr. Herbert Popenoe for help with the statistics presented in this paper.

* Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

The inadequacy of the height, weight, age tables to measure the nutritional status of children has been pointed out by many observers. The wide use of these tables in schools and by pediatricians is perhaps responsible for too much significance being attached to deviations from average weight.

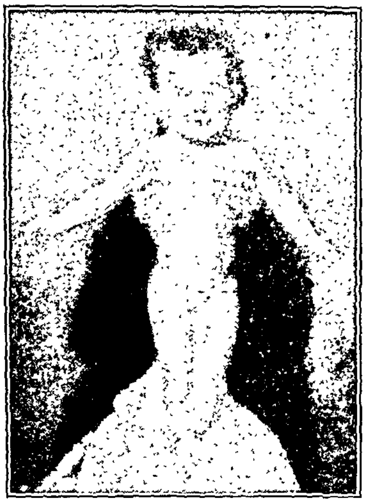

Fig. 1.—Jean, aged 8 months: height, 27 inches; weight, 14½ pounds; width-length index, 156.

Dr. Franzen points the way to a better method of judging nutrition when he emphasizes the importance of skeletal dimensions as determining variations in weight.

We agree with him that weight takes into account skeletal dimensions as well as the mass of soft parts and reflects skeletal build rather than soft tissues.

Obviously, girth measurements give an idea of nutritional status since they measure the soft tissue or padding carried by the bony framework.

A large bony framework not only requires large muscles to operate it but is also able to maintain a much larger amount of soft tissue padding than a small one. Individuals of the same height, age and sex may differ greatly in width of shoulders, chest and hips. Diameter measurements on children illustrate this point. Among ten 3-year-old girls whose height was from 39 to 39½ inches the iliac crests varied from 15 to 17.5 cm. (16.5 per cent). Their weight varied from 29¾ to 47 pounds (56 per cent). Among sixteen 7-year-old boys whose height was from 48 to 48½ inches the iliac crests varied from 18 to 20.2 cm. (12.5 per cent). Their weight varied from 42½ to 67½ pounds (59 per cent). The differences in body weights in these children are due to differences in width of bony frame, size and weight of bones and muscles and amounts of subcutaneous tissue. Roentgenograms indicate that broad built children have broad heavy bones and narrow built children have slender bones. The fallacy of the height, weight, age table data for predicting normal weight is immediately apparent.

Dr. Franzen points out the necessity of having a concrete measure of that heretofore vague clinical term "nutrition." He shows how widely two or more physicians may vary in their clinical rating of nutrition in the same group of children. Nutritional status and body build are closely related separate entities. We feel that since weight runs parallel with build a simple measure of body build would give at once a method of calculating the amount of weight divergence from height weight averages which should be called normal for different types of bony framework.

In seeking a method to judge skeletal differences we have made sixty-three body measurements on children, following Draper's[1] technic. We have worked out twenty-seven indices from these measurements and have found that several of them give substantially the same information. Our material consists of 1,000 children from the age of 2 weeks to 17 years. There are 500 boys and 500 girls. Table 1 shows the distribution according to age and sex. They are all white, native-born, middle and upper class children taken from private office practice.

Table 1.—*Age and Sex Distribution in One Thousand Cases*

Age	Sex		Total
	Male	Female	
0–1	97	94	191
1	84	59	142
2	37	37	74
3	40	29	69
4	38	32	70
5	22	30	52
6	33	32	65
7	26	29	55
8	24	35	59
9	16	23	39
10	18	23	41
11	14	24	38
12	21	20	41
13	16	10	26
14	7	7	14
15–17	7	16	23
Total	500	500	1,000

Indices for calculating body build are nearly as legion as the terminology describing types. For the most part they are very complicated and require many measurements, which would not be practical for the average practitioner to use. Naccarati's[2] index is one of the most complicated. He determined the ratio of length of the arm and length of the leg to volume of the trunk.

Davenport[3] describes a much simpler method. He points out that many regard it as a truism that build is a relation of volume to stature. He has classified build by measuring the relation of weight to stature since weight is more closely related to volume than any other commonly obtained measurement. He classified very slender, slender, medium, fleshy and very fleshy. The weight in pounds divided by stature in inches multiplied by 1,000 gives him indices from 20 to 60. His frequency polygon is the same type of figure that we have obtained by plotting curves of our width-length ratio. He discusses the significance of variations in build and diseases in relation to build, and proves the direct inheritance of tendencies to particular types of body build. He also indicates that there is strong evidence of the mendelian inheritance of body build.

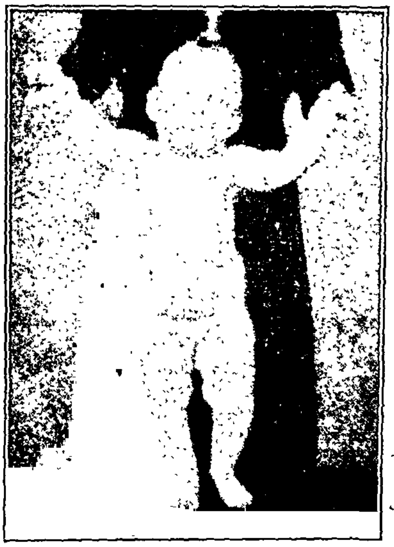

Fig. 2.—Wilfred, aged 8 months: height, 31 inches; weight, 30½ pounds; width-length index, 183.

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[1] Draper, George: Human Constitution, Philadelphia, W. B. Saunders Company, 1924.

[2] Naccarati, S.: The Morphologic Aspect of Intelligence, Arch. Psych., 1921, number 45, pp. 1-44.

[3] Davenport, C. B.: Body Build and Its Inheritance, Carnegie Institution of Washington, December, 1923.

We have tried, in the San Francisco study, to simplify classification of body build by merely comparing width to length of body.

A single diameter of the pelvis has been chosen for width, partly because it is easily measured, partly because the crests of the ilium are covered with relatively little subcutaneous tissues in children and partly because it is a constant measurement and not subject to changes with respiration as are the chest measurements. The widest diameter of the iliac crests was measured with calipers pressed firmly to obtain, as nearly as possible, the greatest width of the innominate bone. This measurement was divided by the vertex measurement to get the intercristal diameter in per cent of standing height, thus comparing two linear measurements of length and width to obtain a single index of build. For example, a boy, aged 9 years, is 53 inches (135 cm.) tall. His bi-iliac diameter is 23 cm. Then his width-length index is 23 divided by 135, or 0.170; or a girl, aged 6 years, is 47 inches (119 cm.) tall. Her bi-iliac diameter is 18 cm. Then her width-length index is 18 divided by 119, or 0.155. In dealing with children the factor of growth makes comparison of direct measurements of doubtful value.

This width-length comparison involves two very simple measurements which can be carried out in any office practice. The width-length index obtained gives direct information concerning the type of bony framework possessed by an individual. Therefore it is a measure of the unchangeable inherited characteristic of body build. Davenport has proved the genetic basis of body build. Nutritional status and body build are two separate entities which nevertheless may have a direct relationship to each other. As has been pointed out, a large heavy framework requires larger muscles to move it and is also capable of carrying a larger mass of fat and subcutaneous tissue than a small one. For this reason, large boned children may be classed overweight and small boned children may be classed underweight by height-weight table standards when both may be normal weight for their inherited framework. (The converse is true also.)

The width-length index increases directly with the relative breadth of the child since it expresses the simple relationship of width to length of the body. Broad, stocky children have high indices and slender children have low indices.

Indices vary from 130 to 190 (fig. 5). The width-length index can be used to compare children of all ages since it expresses a relationship of each body to itself. Empirically, it can be said that a low index means a slender child with small bones and a high index means a broad child with large bones. Examination of figure 6 shows that the central tendency of this index is higher for babies than for children because of the shortness of their bodies, but their individual variation is nearly as great before 1 year of age as afterward. We have attempted to get a measure of the amount of variation from the height, weight, age table averages that should be allowed for body build before diagnosing overweight or underweight. If a child's width-length index is small, he should weigh less than the height-weight table indicates, and if his index is large he should weigh more than the table indicates.

The use of the height-weight-age tables is quite indispensable and we seek only a new interpretation of them. The tables now so widely used are based on measurements of many thousands of children and possess valuable information concerning the central tendency of the mass of measurements from all sources on these thousands of children.

It has been shown many times that the human race cannot be sharply and neatly classified into the various types that have been so artistically described by the many writers on the subject. The pyknic and asthenic, the linear and lateral, exist as pure types only rarely. All classes of body build grade imperceptibly into one another and yet it is necessary to recognize and designate certain characteristics most often found together. The mass of the population exhibits bewildering claims to certain features of all classifications that have been devised. Thus one may see an individual whose extremities are of the linear type and whose trunk is of the lateral type or one whose organs seem to be of the lateral type and whose trunk is of the linear type. In the animal world one sees the Boston bulldog with achondroplastic head and normal legs, the Scottish terrier with achondroplastic legs and normal head, and many other mixed types discussed by Dr. Stockard.[4] Perhaps the human race is biologically conglomerate. Who, then, shall classify certain narrow physical or physiologic traits as normal?

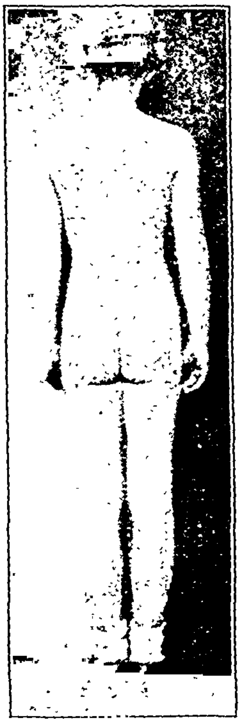

Fig. 3.—Patsy, aged 9 years: height, 52 inches; weight, 57 pounds; width-length index, 148.

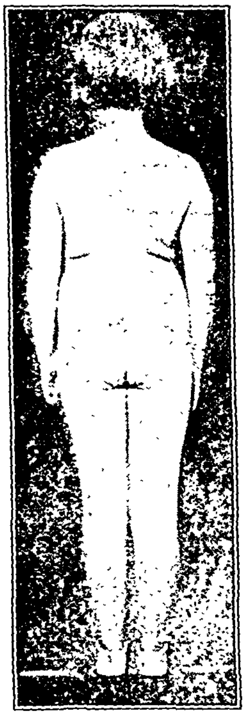

Fig. 4.—Margery, aged 9 years: height, 51 inches; weight, 71 pounds; width-length index, 163.

To get at the relationship of the nutritional status assigned by the height-weight-age tables and the width-length ratio of the body we compared the percentage deviation of the width-length index from average with the percentage deviation of the individual's weight from the height-weight-age "normal" in each case. For each child the weight was calculated a certain per cent above or below the ideal weight in the height-weight-table and his width-length index was calculated a certain per cent above or below the average width-length index for his age. These percentage variations were then compared for 1,000 children by calculating the standard deviations. Standard deviations and correlation coefficients were calculated according to the Pearson correlation formulas:

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[4] Stockard, C. R.: The Physical Basis of Personality, New York, W. W. Norton & Co., 1931.

$$\sigma x = \sqrt{\frac{\Sigma x^2}{N}} \qquad \sigma y = \sqrt{\frac{\Sigma y^2}{N}}$$

$$r = \frac{\Sigma xy}{\sqrt{(\Sigma x^2)\,(\Sigma y^2)}}$$

Standard deviations were found for various age levels, the two sexes done separately. Average indices and standard deviations are nearly identical for boys and girls up to the age of 11 years and so are shown together. Indexes for ages 5 to 10 years are very similar and so standard deviations are calculated for that age group together. From the ages of 11 to 17 the girls vary more than the boys and so the deviations are calculated separately (table 2).

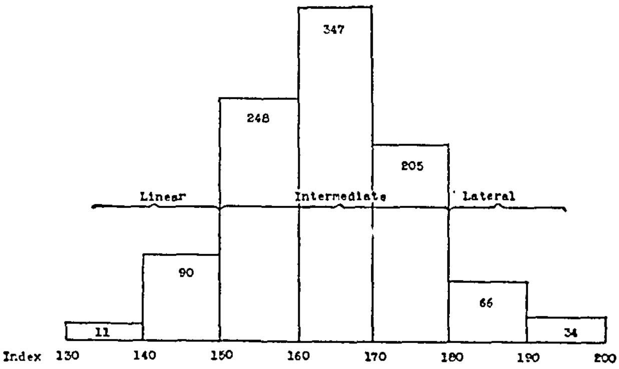

Fig. 5.—Frequency distribution of 1,000 cases, width-length index.

TABLE 2.—*Distribution of Standard Deviations Expressed as Percentage Variations for Width-Length Index and Height-Weight Table Normal Weight*

Age	N	Mean Index	σx	σy	r	PEσx	PEσy	PE r
0–1	191	175.2	6.76	11.63	0.46	0.24	0.41	0.039
1–2	143	168.4	5.97	10.61	0.27	0.24	0.42	0.0525
2–3	74	165.7	4.92	9.25	0.39	0.27	0.51	0.0666
3–4	69	163.4	5.43	10 16	0.28	0.31	0.51	0.0747
4–5	70	162.6	6.11	12.70	0.28	0.35	0.73	0.0744
5–10	311	157.4	5.24	11 86	0.45	0.14	0 32	0.0306
Male 11–17	65	155.1	6 48	11 48	0 31	0.38	0 66	0.0753
Female 11–17	77	164.9	7.40	16.32	0.48	0.40	0.89	0.0591

N, Number of children.
σx, Standard deviation from width-length index mean for age in per cent.
σy, Standard deviation from height-weight age table; normal weight in per cent.
PE, Probable error.
r, Correlation coefficient.
Mean Index, width-length index mean for age.

When x equals deviation from per cent mean of width-length index, and y equals deviation from mean of body weight based on table, σx is consistently about one half of the σy for all ages and both sexes.

This indicates that x is twice as good as y as a measure of this series of children.

The correlation coefficient is less than 0.50 in every case and averages 0.37, which indicates a slight positive relationship.

For age 0-1 $\sigma x = 6.76$; $\sigma y = 11.63$. Then approximately two thirds of the 191 children at that age fall within 6.76 per cent of mean x and two thirds of the 191 children at that age fall within 11.63 per cent of mean y; or, to state it differently, 4 points on either side of x mean will include 50 per cent of the 191 children while 4 points on either side of y mean will include only 30 per cent of the 191 children.

For age 5-10, $\sigma x = 5.24$; $\sigma y = 11.86$. Then approximately two thirds of the 311 children fall within 5.24 per cent of x mean and two thirds of the 311 children fall within 11.86 per cent of y mean; and, for ages 5-10, 3 points on either side of x mean will include 50 per cent of the 311 children while 3 points on either side of y mean will include only 20 per cent of the 311 children. To measure the probability that differences as extreme as those observed could arise by chance, the critical ratio was calculated by taking the standard deviation of these two standard deviations for x and y according to the formula:

$$C.R. = \frac{\sigma x - \sigma y}{\sqrt{\sigma^2_{\sigma x} + \sigma^2_{\sigma y} - \left(2r^2 xy\,\sigma_{\sigma x}\,\sigma_{\sigma y}\right)}}$$

The indication is that the observed differences between σx and σy could arise by chance once in approximately a quarter of a million cases at most of the age levels.

To summarize the relationship of width to weight in this series: the standard deviations indicate that weight varies from the height-weight table ideal twice as much as the width-length index varies from the average at each age when both are measured in per cent. For example, if a boy, aged 7 years, has an index 150 (4.5 per cent less than the average 7 year old index 157.4) his weight could be (2 × 4½) 9 per cent less than the height-weight table ideal and still be normal for his frame. If he is 48 inches tall his normal weight, according to the height-weight table, is 53 pounds (24 Kg.), but since his hips are so slender he could weigh 9 per cent less, or 48³⁄₁₀ pounds (21.9 Kg.) and be normal for his frame. Or if a girl, aged 4 years, has an index of 176 (8 per cent larger than the average 4 year old index 162.6) her weight could be 16 per cent greater than the height-weight table ideal and still be normal for her frame. If she is 40 inches (101.8 cm.) tall her normal weight, according to the height-weight table, is 36 pounds (16.3 Kg.); but since her hips are 8 per cent wider than the average for her age she could weigh 16 per cent more than 36, or 41 ⁷⁄₁₀, pounds and be normal for her frame.

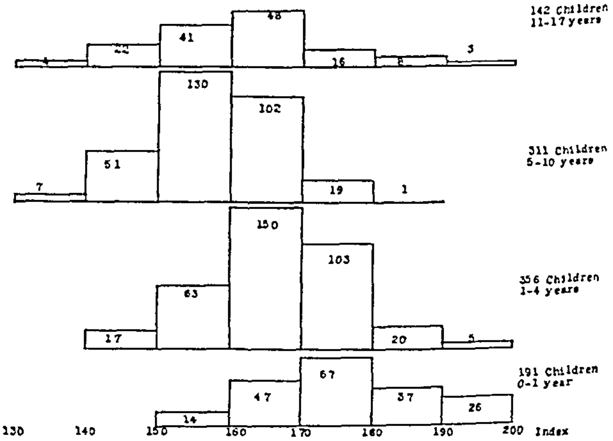

Fig. 6.—Frequency distribution by ages, width-length index.

Body build or type has been assigned significant rôles in medicine since the time of the ancients, when habitus was considered by Hippocrates in the etiology of disease. Certain psychologic aspects of man were thought to parallel closely certain anatomic aspects from earliest time. Thus, Shakespeare put into the mouth of Caesar the prevailing opinion of the linear type:

> Caesar—Let me have men about me that are fat;
> Sleek-headed men, and such as sleep o' nights:
> Yond Cassius has a lean and hungry look;
> He thinks too much: Such men are dangerous.
>
> Anthony—Fear him not, Caesar; he's not dangerous;
> He is a noble Roman, and well given.
>
> Caesar—Would he were fatter!

Very little work has been done on the problem of the relationship of anatomic types and physiologic functions, although Dr. Maclaren Thompson[5] has given an excellent description of certain functional differences in discussing types of individuals. He quotes from Bean,[6] Montessori and others. To contrast the two extreme human types, the following outline, largely from Thompson's lecture material, attempts to classify what is known of linear and lateral types in the four panels suggested by Draper:[7]

ANATOMIC PANEL

Linear Type	*Lateral Type*
Narrow head	Round head
Hatchet face	Round or pentagonal face
Long narrow straight nose	Pug or thick nose
Interpupillary distance short—eyes close together	Interpupillary distance wide; eyes far apart
Small (often receding) chin	Prominent chin
Teeth crowded and ill set	Teeth not crowded; smoothly set
Abundant hair on head	Moderate hair on head
Reduced hair on body	Moderate hair on body
Neck long and of small circumference	Neck short and thick
Long limbs and trunk	Limbs and trunk short and thick
Shoulders high and angular, prominent scapula, round shouldered	Hands and feet often large
Thorax long, narrow and shallow with small circumference and outlet	Thorax short vertically compared with abdomen, but broad and deep, ample circumference and wide outlet
Ribs set obliquely, subcostal angle narrow, chest capacity and expansion poor	Ribs approach horizontal, subcostal angle widely open, thoracic capacity large, expansion good
Heart is small; its long axis approaches the vertical; it is situated rather low down in the thorax and is somewhat cramped for room	Heart is large, its long axis approaches the transverse; it is situated high in the thorax; plenty of space to function energetically
Arteries and veins are thin and elastic and become sclerosed only in old age	Arteries and veins thick and inelastic and liable to sclerosis at an early age
Abdomen is short vertically; pelvis is wide	Abdomen is well developed, is longer vertically than the thorax, often protrudes
Liver is low lying with vertical inclination, keeps mainly to the right	Liver is large, high lying, transverse extends well over to left side
Stomach is low lying, often below the umbilicus, vertical and lying strictly to the left side; J shaped so-called fish hook stomach; the lowest part of the stomach lies some considerable distance below the pylorus so the stomach must empty itself against gravity; complete emptying is often difficult	Stomach lies high; its long axis approaches the transverse so-called cow-horn stomach; the pylorus lies very little higher than the lowest point of the stomach (emptying time not retarded by gravity); pylorus tends to lie to the right of the midline
The small intestine is short	Small intestine is longer than average
The large intestine is long	Large intestine is shorter than average; transverse colon short and straight
Extraperitoneal fat scanty	Extraperitoneal fat prevents undue movements of the abdomen viscera; plenty of fat about kidney
Almost no reserve adipose tissue	Ample reserve of adipose tissue
Poor musculature; slender muscles	Well developed musculature
Slender bones	Broad bones
Body slender and underweight according to the tables	Body short thick set, often stout, overweight according to the tables

PHYSIOLOGIC PANEL

Linear Type	*Lateral Type*
Physiologically far-sighted	Physiologically near-sighted
Left heart average development	Left heart better developed than in linear type
Circulation often poor	Circulation is good
Low blood pressure	High blood pressure
Pale complexion, anemic looking, often sallow or muddy complexion	Therefore ruddy or plethoric countenance
Chest expansion poor and oxygenation of blood is poor with some stagnation of pulmonary circulation; venous circulation tends to stagnate, producing prominent blue veins	Respiratory function is very satisfactory so the blood not only circulates vigorously but is well oxygenated in addition.
Stomach empties with difficulty against gravity	Stomach empties itself readily
Shortness of the small intestine causes poor assimilation since the food passes through more quickly, and the general nutrition suffers; trophic functions are not vigorous	Because the small intestine is long there is preponderance of absorptive portion of the bowel which leads to good assimilation and good nutrition
This type should get a well cooked, highly nutritious diet containing plenty of concentrated food, as meat, eggs and milk	This type of person should be a vegetarian since the diet should be bulky and not overnutritious or concentrated; plethora is caused by overnourishment in this type
Often constipated	Not constipated
Arrive at puberty early	Arrive at puberty late
Males have deep bass or heavy baritone voice	Males have light tenor voices

PSYCHOLOGIC PANEL

Intense, intellectual and self-centered	Socially easy-going
Fond of reforming, dogmatic and fanatical	Tolerant in morals and religion
Often deficient in sense of humor	Well developed sense of humor
Poor executive ability	Good executive ability
Little endurance	Great endurance
Speedy adjustment	Slow adjustment
Increased psychic excitability	Decreased psychic sensitiveness
Nervous temperament	Phlegmatic-torpid temperament
Quick and changeable	Slow and methodical
Introverted	Extraverted
Prone to fixed ideas and ideas of persecution	Predisposed to recurring circular or manic-depressive forms of insanity
Self conscious	Not self conscious

IMMUNOLOGIC PANEL

Liable to act?

Tabes mesenterica	Heart disease
Cervical lymphadenitis	Chronic nephritis
Enlarged tonsils and adenoids	Arteriosclerosis
Influenza; colds	Aneurysm
Tuberculosis	Apoplexy
Melancholia	Paralysis
Nervousness	Diabetes
Fevers	Bladder trouble
Appendicitis	Hernia
Intestinal trouble	Liver trouble
Gastric ulcer	Gallstones
Anemia	Gallbladder trouble
Rheumatism	Hemorrhoids
Diphtheria	
Scarlet fever	

It seems easier to see a direct relationship between anatomic form and physiologic function than between anatomic form and psychologic patterns. Dr. Paterson[8] has applied the statistical method of direct correlation and thus measured the degree of relationships between mental traits and physical traits as reported by many observers who used methods of group comparison which the author points out can only indicate the existence of a probable relationship.

He concludes with Pearson that intelligence is only negligibly correlated with a wide array of physical traits and physical conditions.

Turning to the physiologic panel, we[9] have been struck with the general similarity of the children whose main complaint is anorexia. In one series of 110 children, already reported, we noted that 82 per cent of them were of the slender or linear type and so would be expected to have the slow-emptying, fish hook type of stomach. We have since observed 74 additional patients whose main complaint is anorexia. For this whole number the width-length indices vary from 135 to 169 with an average for the whole group of 149, which is low.

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[5] Thompson, Maclaren: On Anatomical Types and Their Relationship to Disease, Canad. M. A. J. **14:** 1155 (Dec.) 1924.

[6] Bean, R. B.: The Two European Types, Am. J. Anat. **31:** 350 (March 15) 1923.

[7] Draper, George; Dunn, H. L., and Seegal, D.: Studies in Human Constitution: Facial Form and Disease Correlation, Am. J. M. Sc. **169:** 322 (March) 1925; Human Constitution—Clinical Anthropometry, J. A. M. A. **82:** 431 (Feb 9) 1924.

[8] Paterson, D. G.: Physique and Intellect, New York, Century Company, 1930.

[9] Lucas, W. P., and Pryor, Helen B Factors Involved in Combating the Hunger Strike in Children, Am. J. Dis. Child. **41:** 249 (Feb.) 1931.

We recognize the necessity of feeding children according to their powers of digestion and their individual anatomic needs. These two things are indicated by the body type, which we feel can be measured satisfactorily by calculating the width-length index. If the existence of divergent body types is recognized which in the whole population grade imperceptibly into one another there will be a more labile conception of normal, and it should be easy to classify any given individual in a wide zone, as the standards for normal are different in these different zones. The three weight zones that we recognize start with the central average or intermediate group whose proportions correspond closely to the ideal in the height-weight-age tables. This represents the mass of the population (80 per cent of our series). But instead of considering variations in either directions as pathologic, i. e., underweight or overweight, we recognize a normal zone for the linear type individuals who are underweight according to height-weight-age tables but whose width-length ratio is small, below 150 (10 per cent of our series), and a normal zone for the lateral type individuals who are overweight according to height-weight-age tables but whose width-length ratio is large, above 170 (10 per cent of our series). A lateral type individual might actually be underweight even though he was heavier than the average in the height-weight-age tables and, conversely, a linear individual might actually be overweight even though he was under the average in the height-weight-age table.

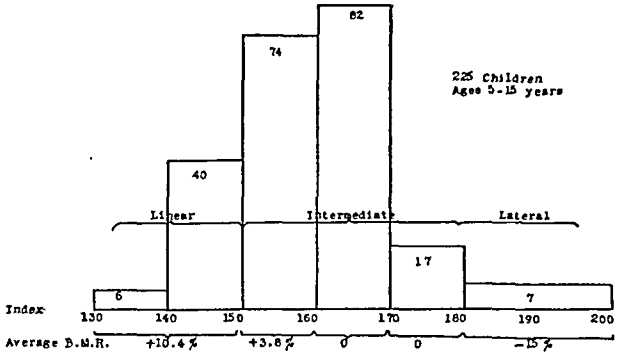

Fig. 7.—Average basal metabolic rates distributed according to width-length indexes of groups.

Correlations between body build and basal metabolic rates on 225 children show in general that linear type children tend to have higher basal metabolic rates than lateral types and that extremely high or extremely low basal rates are usually found in the children whose width-length indices classify them as marked linear or lateral types.

All basal metabolic rates were calculated by the Benedict-Talbot or Harris Benedict standards and at least two consistent readings were taken on each child reported. Metabolisms were checked at three month intervals when possible. Figure 7 indicates the relationships between the basal metabolic rates taken and the body type as measured.

Of 45 children whose width-length indices were between 130 and 150, 9 had minus basal metabolic rates (average for group —9.4 per cent) and 34 had plus basal metabolic rates (average for group + 16.2 per cent). 2 were zero. Mean basal metabolic rate for index was + 10.4 per cent.

74 children had width-length indices between 150 and 160. 29 had minus basal metabolic rates (average for group — 12.1 per cent). 43 had plus basal metabolic rates (average for group + 14.8 per cent). 2 were zero. Mean basal metabolic rate for index was + 3.8 per cent.

82 children had width-length indices between 160 and 170. 42 had minus basal metabolic rates (average for group —12.2 per cent). 34 had plus basal metabolic rates (average for group + 14.1 per cent). 6 were zero. Mean basal metabolic rate for index was zero.

17 children had width-length indices between 170 and 180. 6 had minus basal metabolic rates (average for group —9.9 per cent). 7 had plus basal metabolic rates (average for group + 9.3 per cent). 4 were zero. Mean basal metabolic rate for index was zero.

7 children had width-length indices between 180 and 200. All 7 had minus basal metabolic rates (average for group — 15 per cent).

A small beginning has been made in the study of body build as related to allergic conditions. A preliminary survey confirms the impressions that asthma occurs largely in linear type children. Of fifty allergic children measured, those whose complaints were asthma and bronchitis had an average width-length index of 152. Those whose complaints were first eczema and then asthma had an average width-length index of 165 and those whose complaints were eczema and hives had an average width-length index of 178. The last group were all babies, so the high index is only 3 points higher than average for the first year. No conclusions can be drawn from so small a number; a further study is in progress.

Dr. Davenport, who has been studying growth problems, sums up our general observations, as well as his own, when he says: "The point I have been making is that just the average curves of growth derived from the study of masses are of little value for judging the normality of the growth of the individual since the normal individuals grow in such different fashion."

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ABSTRACT OF DISCUSSION

Dr. Isaac A. Abt, Chicago: Almost any measurements that one may make on the body surface of the child will represent growth and will serve as a variable to indicate increase in size, growth and general development. So far as the height and weight measurements are concerned, a general acceptance of height and weight measurements is not sufficient because one is dealing with different types of children. The authors mentioned two, the linear type and the broad type, but many authors classify a larger group. It is apparent that it is impossible or difficult to discuss this problem categorically, and it must be tested out in the line of more extended clinical experience. It seems to me that this paper contains a great many suggestive facts which should be applied by clinicians on a large number of children. But perhaps I may be permitted to state some general principles about measurements. They should fulfil the following requirements: First, the data should be uniform for the entire period of investigation; second, the children examined should belong to the same racial, social and morphologic groups. By morphologic I mean variations in type of build or architecture. The material should be so large that actual or accidental fluctuations are negligible. Average values for the group measurements are in themselves inadequate. The extent of variation and the standard of deviation must also be given. Very important is the correct statement of age. Quite often children of 9½ years are considered as 10 years of age in the tables, or a child is estimated to be 10½ years of age when he is 10¼ or 10¾ years. In some investigations children have been weighed with their clothes on or measured with their shoes on, which, of course, is not accurate. Then there are a number of other conditions which I shall briefly enumerate. Hereditary constitutional characteristics influence growth. Other factors are the birth weight, which depends on the age of the mother (the children of older mothers weigh less than children of younger mothers), *primary congenital* disturbances of growth, hyperplastic constitution, congenital overweight, congenital dwarfism (of which there are several kinds), the correlation between the growth and the internal secretory organs, growth of children with subnormal birth weights, debilitated children; also, twins (which may behave like premature children). Then there should be considered the effect of environment on growth; that is to say, quantity and quality of food, social status, effect of resting, diseases, vacations, sports and exercise.

Dr. Oliver W. Hill, Knoxville, Tenn.: For a number of years I have observed children that go to the public schools. The nurse tells them they are underweight, causing much distress, as this is in some instances counted against their grade rating. They may be of a family of small stature and this is a family characteristic. As Dr. Abt mentioned, it may be a racial characteristic; still they insist on these children taking too much milk and too much food for their digestive ability, attempting to make them conform to an arbitrary standard. In girls, especially, I have noticed this particular phenomenon. Girls seem to lend themselves more to the suggestions in order to please the nurse and the teacher. They take this food and become overweight; then at 13 or 15 they decide they want to slim down and get the boyish figure; they begin to diet and in many instances do themselves irreparable injury. The same thing applies to infants. A woman who weighs 100 pounds wants her baby to be as large as that of her neighbor, who weighs 140 pounds. Of course, the physical ability of the children to gain weight is not the same. The child is done a definite injury many times. If one had some way to correct the standards that the nurses use in the schools and convey this information to them, I think one could do away with a lot of anxiety on the part of the parents as well as physical injury to the children under their supervision.

THE FILAMENT-NONFILAMENT COUNT

ITS DIAGNOSTIC AND PROGNOSTIC VALUE *

W. V. MULLIN, M.D.
AND
G. C. LARGE, M.D.
CLEVELAND

Since the time of Ehrlich's epoch-making discovery of a satisfactory method of staining the white blood cells, definite and steady advances have been made in the methods and interpretations of total white blood counts and differential smears. As is well known, the white blood cells were first divided into three types—granulocytes, lymphocytes and large mononuclears. The granulocytes have been further divided into polymorphonuclear basophils, polymorphonuclear eosinophils and polymorphonuclear neutrophils. It is with the latter group that this paper is concerned chiefly.

For many years, differential counts and total counts of the white blood cells have been used as an aid in securing the clinical picture of a disease, the total number of cells and the distribution of types being used mainly as an index of the type of disease present, and the degree of its severity.

In many instances, however, the question in the physician's or surgeon's mind is how to explain certain incompatibilities which arise between the total leukocyte count, the differential smear, and the clinical observations in the case in question.

A distinct advance was made in 1904 and 1905 by Arneth,[1] working at the Leube clinic, when he studied the changes in the nuclear structure of the neutrophils during acute infections. He made a primary division of the polymorphonuclear neutrophils into five classes, each class being recognized by the number of segmentations to the nuclei, the fifth class including those containing five or more distinct segments. He further subdivided these and also the lymphocytes and monocytes until he had in all eighty-one subdivisions.

This was a rather complicated picture, to say the least, as far as being of practical value in making a differential count, but it gave a lead as to the changes occurring in these cells in infections, and a possible explanation of these changes.

In his study Arneth observed that normally the predominating type of polymorphonuclears in the blood stream consisted of those which contain two or more segments, from 90 to 95 per cent being of this class.

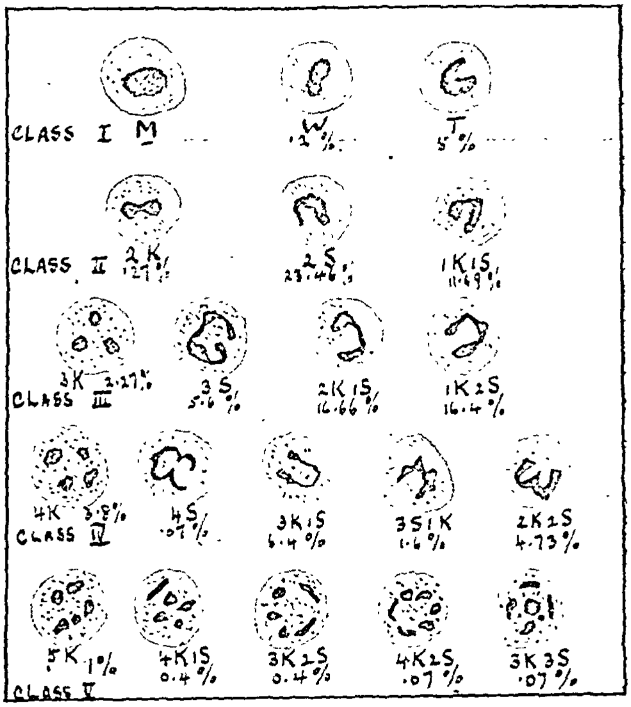

Fig. 1.—Classifications of polymorphonuclear neutrophils by Arneth. From Cooke and Ponder: The Polynuclear Count.

He showed that the class I polymorphonuclear neutrophil containing an unsegmented nucleus is a young or immature cell and that the age of the cell is decided by the extent of the segmentation. Arneth pointed out that in acute infections these immature cells increase in number, while the older cells show a corresponding decrease. This change he termed a "shift to the left," and a return from such a change was termed "a shift to the right." These changes are fairly constant, varying with the severity of the infection, the number of immature forms becoming more numerous as the infection grows worse and lessening in number on recovery and convalescence with reversion to the two to five segmented variety.

This appearance of immature forms in the blood stream is explained by a destruction of the normal balance between leukocytic regeneration and degeneration, which is constantly going on in the body. The presence of a leukopenia or a leukocytosis is caused by an inhibition or a stimulation, respectively, of the bone marrow by the bacterial toxin. When increased destruction of white cells occurs in infection, an increasing demand is put on the bone marrow, which is unable to cope with the increasing demand for mature cells, and therefore immature cells are poured out.

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* From the Cleveland Clinic.

* Because of lack of space, this article has been abbreviated here. The complete article appears in the Transactions of the *Section* and in the authors' reprints.

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Arneth, J.: *Die neutrophilen Leukozyten bei Infectionskrankheiten,* Deutsche med. Wchnschr. **30**: 54, 92, 1904.

Although Arneth's observations promoted great interest throughout the scientific world and it was recognized that his procedure was of definite value, it did not come into popular laboratory use because of its complexity and the length of time it took to do one count.

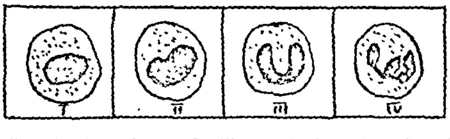

Fig. 2.—Classification of von Schilling, dividing Arneth's class I into three types and placing the remainder of Arneth's classification in class IV: I, myelocyte; II, young form; III, band form; IV, all segmented varieties.

In 1920, von Schilling,[2] of Berlin, after a thorough application of Arneth's methods, published a modification of his classifications. He divided Arneth's class I into three types, the earliest form a myelocyte, the second a young form and the third and more advanced a band form. His fourth type included all segmented varieties. A count of this type can be made in five minutes and is of great clinical value. It is surprising that von Schilling's modification has not come into more general use, for wherever it has been instituted its popularity has been immediate and its continued use assured. Von Schilling also noted typical toxic changes occurring both in the nuclear and in the granular elements of the young polymorphonuclears. The granules were larger and more deeply staining, and the nuclei tended to assume more bizarre forms. In addition, the cells were found to be more fragile and occasionally fat droplets and vacuole inclusions were found in the nuclei. These changes he did not consider of as great practical value, however, as the "nuclear shift," since they occurred before the crisis and remained after the crisis and were indicative of degenerative changes in the bone marrow.

Table 1.—*Maximum Nonfilament Percentages*

Disease	Nonfilament Percentage	Total Leukocyte Count
Hemolytic streptococcic septicemia	60	4,200*
Hemolytic streptococcic septicemia	72	32,000*
Acute appendicitis	21	15,000
Acute appendicitis	42	23,000
Acute appendicitis	20	11,600
Acute appendicitis	30	16,000
General peritonitis	64	3,000*
Hemolytic streptococcic sore throat	46	9,250
Lobar [illegible]	50	33,200*
Acute [illegible]	42	9,800
Acute [illegible]	22	10,600
Acute [illegible]	15	17,800
Acute [illegible] y)	17	9,400
Acute [illegible]	31	12,050
Acute [illegible]	27	11,600
Acute [illegible]	72	36,200*
Acute [illegible]	39	20,200
Acute [illegible]	51	19,800
Acute [illegible]	36	11,900
Acute [illegible]	26	16,400
Acute [illegible]	30	10,800
Acute [illegible]	62	15,600*
Multiple furuncles	26	16,200
Septic hip	18	14,600
Ruptured gastric ulcer	68	12,200*
Acute cervical adenitis	18	14,300
Acute cervical adenitis	17	14,600
Erysipelas	53	21,000
Acute tonsillitis	35	15,200
Acute labyrinthitis	12	8,800
Acute mediastinitis (following laryngectomy)	54	19,200*
Intestinal obstruction	35	27,800*

* Death occurred.

Other workers presented various modifications of Arneth's classification. In 1924, Pons and Krumbhaar[3] named three classes; Cooke and Ponder,[4] in 1927, and Piney,[5] in 1928, also made noteworthy advances in the evaluation of qualitative changes in the leukocytes.

In 1930, Farley, St. Clair and Reisinger[6] brought forward the simplest classification yet advanced. They desired a method that could be used as a routine count and yet retain all the value of the more complex systems. They took as a basis the works of Krumbhaar and of Cooke and Ponder. The former had made a division into three classes: (1) metamyelocytes, (2) the nonsegmented types and (3) the segmented forms; the latter had pointed out that all divided nuclear masses were connected by a thin filament of nuclear material but they had used a five type classification. Combining these two systems, Farley and Reisinger divided polymorphonuclear neutrophils into two classes—the nonfilamented immature forms and the filamented mature forms. This gave a simple classification that could be used in conjunction with an ordinary differential count, necessitating no added labor or training. By simply classifying the leukocytes as to the relative percentage of nonfilament neutrophils, filament neturophils, lymph-

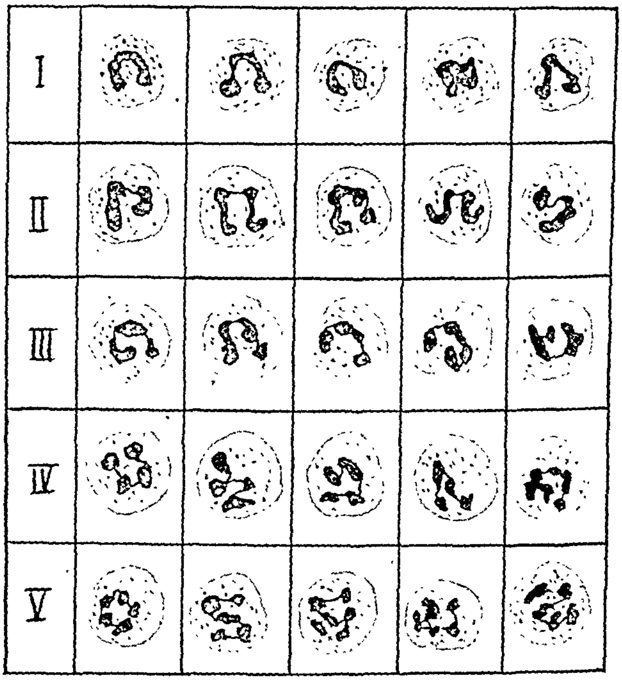

Fig. 3.—Classification of Cooke and Ponder, dividing polymorphonuclear neutrophils into five types, each type being designated by the number of divisions in the nucleus, noting that each nuclear segmentation was connected by a very fine filament of chromatin material. From Cooke and Ponder: The Polynuclear Count.

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[2] von Schilling, Vic [illegible] gründsätzlicher Beachtung der neutrophile [illegible] und über praktische Erfolge dieser [illegible] 1920.

[3] Pons, C., and Krumbhaar, E. B.: Studies in Blood Cell Morphology and Function; Extreme Neutrophilic Leukocytosis with Note on Simplified Arneth Count, J. Lab. & Clin. Med. **10:** 123-126 (Nov.) 1924.

[4] Cooke, W. E., and Ponder, Eric: The Polynuclear Count: The Nucleus of the Neutrophil Polymorphonuclear Leukocyte in Health and Disease, with Some Observations on the Macropolycyte, Philadelphia, J. B. Lippincott Company, 1927.

[5] Piney, A.: Diseases of the Blood, Philadelphia, P. Blakiston's Son & Co., 1928.

[6] Farley, D. L.; St. Clair, Huston; and Reisinger, J. A.: Normal Filament and Nonfilament Polymorphonuclear Neutrophil Count; Its Practical Value as Diagnostic Aid, Am. J. M. Sc. **180:** 336-344 (Sept.) 1930.

ocytes, monocytes, basophils and eosinophils, much valuable information may be added to the routine differential count.

Farley, St. Clair and Reisinger, in studying the blood of 100 normal adults by the method described, found that an approximate normal upper limit of nonfilament percentage could be set at 16. They also pointed out its value in diagnosing the presence of cryptic infections and as added presumptive evidence in cases of malingering.

The foregoing classification was used in the cases presented in this paper because of its simplicity of procedure while retaining all the valuable information of the former more complex methods. A slight modification was made in that instead of basing our observations on a count of 100 leukocytes, figures are reported on 100 polymorphonuclear neutrophils counted as well.

We have attempted in the cases here reported to attach a prognostic value to this count and our conclusions are based on the study of some thirty cases of acute infection taken from all services in the hospital. In all instances in which it was possible to do so, daily counts were made and also total leukocyte counts. It would take too much time to discuss each case in detail; consequently the cases studied, with the maximum nonfilament percentage found in each instance, are given in table 1, and a detailed discussion is given of ten of these cases, the majority of which are from services other than the otolaryngologic service, but chosen because they best illustrate the point in question. On examination of fifteen control smears from healthy adult individuals, a range of nonfilament percentages of from 8 to 16 was found, with an average of 12.1 per cent.

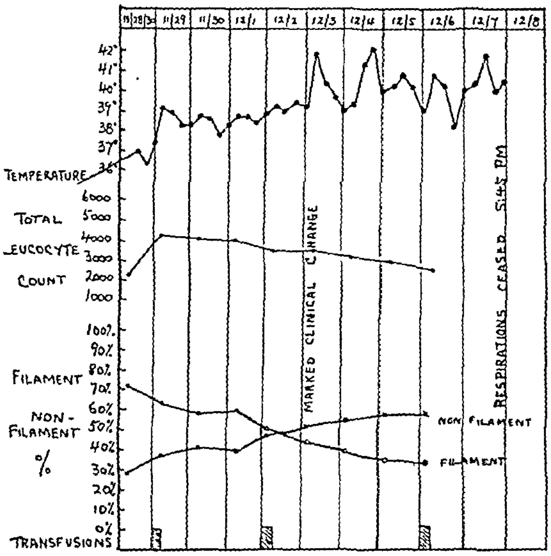

Fig. 4 (case 1).—Hemolytic streptococcic septicemia, generalized hemorrhages, with increasing nonfilament count over 50 per cent, terminating fatally.

Case 1.—A man, aged 35, admitted to the clinic, Nov. 28, 1930, complained of shortness of breath, masses on the thighs and groins, hemorrhage from the nose, and severe furunculosis of the face. Physical examination showed the spleen to be markedly enlarged and extensive areas of hemorrhage were present in the subcutaneous tissues of the arms, trunk and legs; there were large areas of furunculosis on the face and marked hemorrhage from the mucous membrane of the nose and throat. The patient was vomiting blood, but no blood was found in the stools or urine. The patient died, December 7th.

Here is pictured plainly a steadily increasing nonfilament count terminating in death, the nonfilament change preceding the changes in clinical symptoms, as seen in figure 4.

Pneumonia was noted clinically, December 3, with no change in the differential or white blood count, but a rise of 7 per cent in the nonfilament count preceded this condition by twenty-four hours.

This case is a good example of the additional information that may be obtained from a count of this type. Postmortem examination revealed hemolytic streptococci from the heart's blood, although blood cultures during the course of the illness were repeatedly negative, terminal pneumonia and hemorrhages from all the mucous surfaces being the final cause of death.

Case 2.—A woman, aged 60, was admitted to the Cleveland Clinic Hospital with a history of severe pain in the right upper quadrant, associated with nausea and vomiting, persisting for five days previous to admission. The vomitus had a fecal odor and no gas or feces had been passed by the rectum. An enema given two days previous to her admission had returned blood stained but clear. For two days previous to the patient's admission there had been no vomiting. Marked distention was present. The patient was never in a condition for operation during her stay in the hospital.

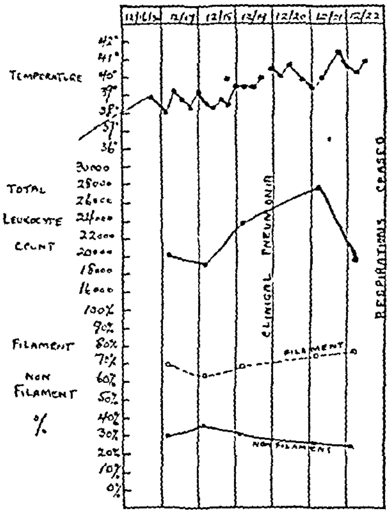

Fig. 5 (case 2).—Acute intestinal obstruction and general peritonitis with constant high nonfilament count.

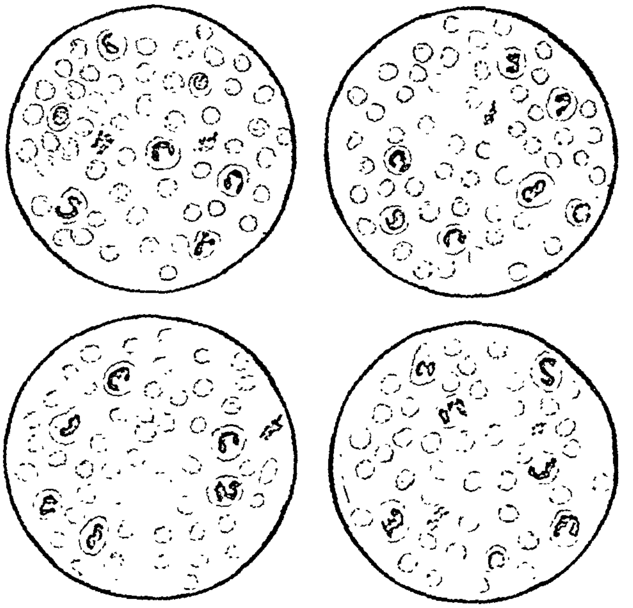

Fig. 6 (case 2).—Toxic changes in the nuclear structure of the polymorphonuclear neutrophils in a case of ruptured gastric ulcer and general peritonitis on the first, third, fourth and sixth days.

In this case is found rather than a steady increase, a constant high nonfilament percentage, beginning at over 30 with a gradual terminal fall. This is not a typical example of the increasing nonfilament percentage, but an interesting point in this case was the presence of marked toxic changes in the nuclei as illustrated in figure 6.

The patient showed steadily increasing weakness and toxicity, but, as has been pointed out, she was in no condition for operative intervention. Although a high white blood count was present throughout the disease, the marked change in the nonfilament percentage is not seen, perhaps because of the decrease in bone marrow activity. The patient died on the sixth hospital day.

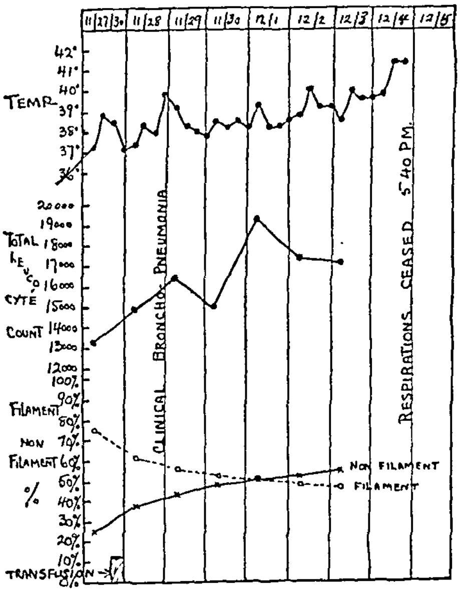

Fig. 7 (case 3).—Acute mediastinitis and bronchopneumonia following laryngectomy, showing increasing nonfilament count, terminating fatally.

Case 3.—A man, aged 62, was admitted to the clinic, Nov. 7, 1930, with a history of having had glands removed from his neck eleven months previously, the condition having been diagnosed at that time as carcinoma. The immediate history included hoarseness for two months and marked difficulty in breathing for one week. Tracheotomy was performed on the day the patient was admitted and laryngectomy five days later. Infection occurred from the mouth through a pharyngeal fistula, and mediastinitis followed in spite of all treatment.

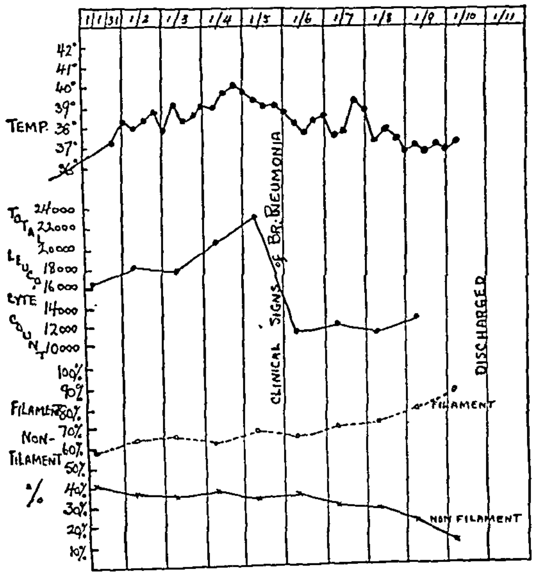

Fig. 8 (case 4).—Acute appendicitis, showing steady decrease of nonfilament count to normal in uncomplicated convalescence.

The patient was not seen until infection was well advanced, but the rapid rise seen on the second count was of grave prognostic significance even before the clinical picture was indicative of a possible fatal issue.

November 28, clinical bronchopneumonia was present late in the day, whereas a marked rise had already been noted in the nonfilament percentage that morning. The persistent high level of nonfilament cells slowly increasing to 50 per cent is well illustrated here in a case which terminated fatally.

Case 4.—A man, aged 32, entered the clinic suffering from a typical attack of appendicitis of sixteen hours' duration. The course of examinations of the blood during his hospitalization is shown in table 5.

Here is seen the gradual steady return to normal percentage of the nonfilament cells in an uncomplicated case of acute appendicitis. As seen in figure 8, the white blood count showed a very rapid drop in twenty-four hours, Jan. 5, 1931. Although clinical signs of bronchopneumonia were recorded on this date, the lungs were perfectly clear the following day and the temperature returned to normal. The nonfilament count showed no change for the worse at this time, and it is hardly likely that any degree of infection was present in the lungs. The patient made satisfactory postoperative progress.

Case 5.—A man when first seen was complaining of severe cold in the head, of ten days' duration; headache was a marked symptom, accompanied by a profuse nasal discharge. Treatment was instituted and a large amount of pus was obtained by suction from both nostrils.

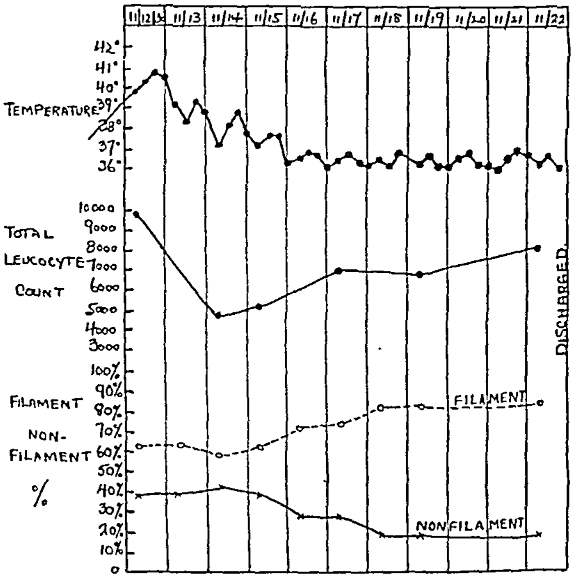

Fig. 9 (case 5).—Acute bilateral maxillary sinusitis, showing steady return of nonfilament count to normal during convalescence.

On the fourth day of observation the left maxillary antrum was irrigated without difficulty through the natural opening. The return was clear. Reaction occurred the following day, the temperature rising to 102 F.; chills occurred.

Conservative treatment was followed and after a week, when marked evidence of sinus involvement was present, the left antrum was again irrigated and a large amount of pus obtained. The following day the patient again suffered a severe reaction and was admitted to the hospital.

The patient showed steady improvement after the third day, as evidenced by the temperature curve and the nonfilament percentage. This improvement, however, is not reflected in the total leukocyte count. This case is also an interesting example of the reactions that may follow the simple washing of an acutely infected sinus.

Case 6.—A man was admitted to the hospital in a critical condition, suffering from severe abdominal pain and general collapse of three days' duration. Immediate operation was performed and a ruptured gastric ulcer with localized peritonitis was found. Repair and drainage were instituted and the patient made satisfactory progress until the third postoperative day.

Here is seen an acute abdominal condition with a very high nonfilament percentage before operation. Following operation and drainage, the nonfilament percentage gradually fell until the third postoperative day, when a marked rise was noted. Later on this day the patient's general clinical condition was markedly worse. Complications were suspected and on examination of the wound and abdomen a breaking down of the operative area was found and a diagnosis of general peritonitis was made. In spite of all treatment, the patient became steadily worse, the nonfilament count rising again with a fatal termination.

The total leukocyte count here again was never as high as one would suspect from the clinical picture, ranging, as seen in figure 10, from 6,000 to 12,000 and not following the clinical course as did the filament-nonfilament count.

Case 7.—A man, giving a typical history of acute appendicitis, was operated on immediately after his admission to the hospital.

Table 8 shows the white blood count fluctuating quite markedly throughout the convalescence, but the patient showed very satisfactory postoperative progress, with the rapid return of the nonfilament relation to normal.

Case 8.—A boy, aged 12 years, was admitted to the clinic with a typical history of acute mastoiditis. Operation was performed and the patient's convalescence was very satisfactory. This case is an example of satisfactory convalescence following operation in acute mastoiditis. Here again the nonfilament count follows closely the clinical improvement.

Case 9.—A woman, aged 35, was admitted to the clinic with an acute abdominal condition. The history was generally unsatisfactory: A diagnosis of general peritonitis was made, but the clinical picture was not critical, although the patient's temperature on admission was 104 F. The blood examinations in case 9 are shown in table 10.

Table 10 shows a very high nonfilament percentage on admission but a clinical picture that is not critical. The patient seemed to be in good condition generally, was not extremely toxic, and the heart and lungs were normal. On the second day, the patient's clinical condition was much worse, with early signs of bronchopneumonia and general collapse. She became rapidly worse and died on the fourth hospital day. This case illustrates the high nonfilament count giving a poor prognosis twenty-four hours before the clinical conditions became alarming.

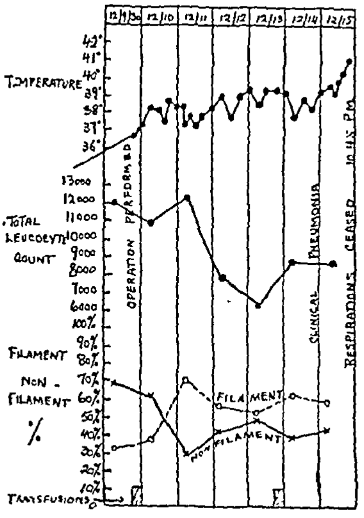

Fig. 10 (case 6).—Ruptured gastric ulcer and general peritonitis illustrating fatal termination with high nonfilament count and secondary rise of nonfilament count indicating complications.

Case 10.—A boy, aged 6 years, gave a history of acute pain in the right ear six weeks previous to admission. The right ear had been discharging during this period and periodic attacks of chills and high temperature occurred. The diagnosis was acute mastoiditis with probable sinus thrombosis and blood stream infection, although the patient's condition appeared to be good.

On operation, the patient was found to have a very acute mastoid condition, with thrombosis of the lateral sinus extending down the jugular vein almost to the level of the clavicle. A mastoid operation was performed, the lateral sinus exposed and the jugular vein tied off. Postoperatively, an abscess developed about the jugular vein with meningitis, and the child died on the sixth postoperative day.

This is another example of an extremely high nonfilament count with a total leukocyte count lower than would be expected. Here, again, is found a very high nonfilament count at the beginning of the period of observation, which, following operation, dropped in only a slight degree; although the nonfilament percentage showed a slow decrease, it was so high at the onset that a favorable prognosis could not be expected.

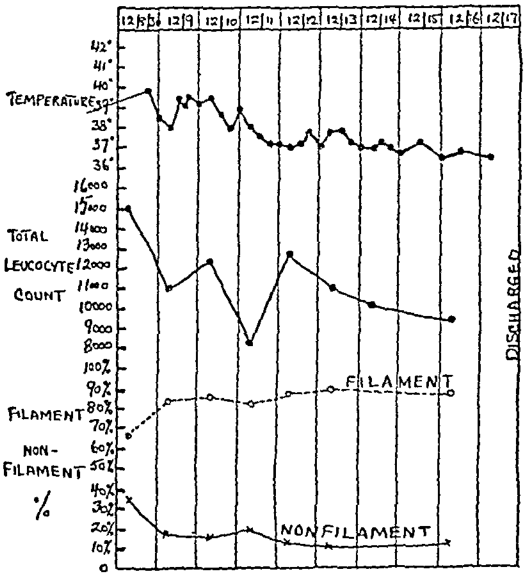

Fig. 11 (case 7).—Acute appendicitis, showing return of nonfilament count to normal in uncomplicated convalescence.

Seven cases of arthritis were studied to see whether any change could be noted in those cases in which the condition could be definitely attributed to an infectious origin. The results were rather promising in that those cases of the infectious type showed an average nonfilament count of 18.6 per cent, whereas the cases of noninfectious origin showed an average count of only 8.5 per cent. The individual counts are shown in table 12.

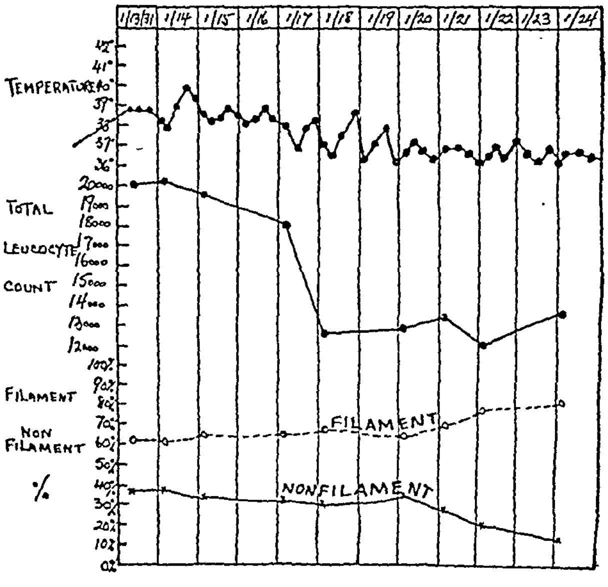

Fig. 12 (case 8).—Acute mastoiditis, showing steady return of nonfilament count to normal in uncomplicated convalescence. The patient was discharged, Jan. 25, 1931.

Table 12 brings out the possibility of an aid to differentiation in this type of case in which any added information is of definite value.

A limited number of cases of allergic phenomena were also studied, and it was found as a general rule in cases in which the asthma could be attributed to foci of infection that the nonfilament count was higher than in those cases in which the condition could be traced to definite protein sensitization.

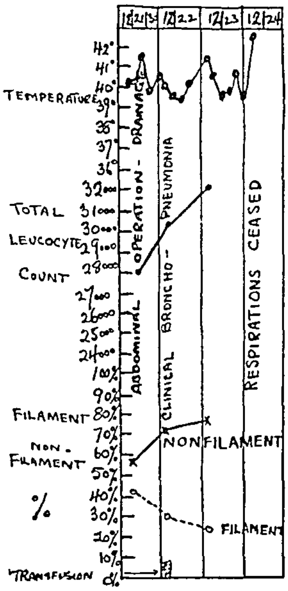

Fig. 13 (case 9).—General peritonitis, illustrating high nonfilament count in fatal case.

In these cases, also, the eosinophilic percentage was interesting in that practically all showed eosinophils of over 4 per cent.

We were greatly interested in the observations of Dr. G. A. Winfield[7] of the Cleveland Clinic in his work on malarial treatment of syphilis. In these cases, nonfilament counts were observed following inoculation with the malarial parasite and very high percentages were noted, ranging as high as from 70 to 80 per cent of nonfilament forms with a marked leukopenia. This was extremely interesting in that none of these cases terminated fatally. It is interesting to note the rapidity with which the changes occurred and also the constancy with which the nonfilament percentage followed the course of the reactions. Dr. Winfield notes the nonfilament percentage to be the most constant blood picture in this treatment.

CONCLUSIONS

1. The filament-nonfilament count as outlined is a valuable aid in securing the clinical picture of disease, following more closely the course of the infection than the total leukocyte count and foretelling complications in convalescence.
2. In nonfilament counts of 50 per cent and over, a very guarded prognosis must be given. The majority of such cases reach a fatal termination.
3. Filament-nonfilament counts may prove valuable aids in the differential diagnosis of infections from noninfectious allergies and arthritides.
4. Filament-nonfilament counts may prove a valuable basis by which to gage the dosage of malarial injection in the treatment of syphilis.

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ABSTRACT OF DISCUSSION

Dr. Thomas Fitz-Hugh, Jr., Philadelphia: This work confirms the observations of others and in addition presents several new applications of Farley's method. I would offer a few words of caution which are intended as supplementary to rather than as critical of the report of Drs. Mullin and Large. In pathologic blood it is sometimes difficult to decide whether a given cell is an abnormal lymphocyte, a young myeloid cell, or a damaged monocyte. In other words, some "nonfilament neutrophils" may be mistaken for and counted as monocytes or lymphocytes. Conversely, some lymphocytes may be mistakenly counted as young myeloid cells. In addition to these, there is the added difficulty of deciding when a filament is not a filament. The differentiation of a "true filament" connecting two separate lobes of a "poly" from a thin band of nuclear chromatin connecting separate parts of a "single lobed poly" is not always easy. Finally, having made the proper count, preferably serial counts day after day, one has to interpret the results. From the standpoint of differential diagnosis, I have not obtained any great assistance from this method. Its especial value in my experience has been to give added information concerning the severity of infection and to aid in estimating the trend of the battle between invasion and defense. I have observed in infants and pregnant women that the response to infection of nonfilamented neutrophils seems greater than in other individuals under similar conditions. I have observed some apparent discrepancies in the method. For example, in the condition known as infectious mononucleosis or glandular fever there is sometimes a marked "shift to the left" which belies the favorable outcome in this interesting disease. In so-called agranulocytic angina, the few patients that have recovered or have entered on a blood remission under my observation have shown an outpouring of young nonfilamented neutrophils which may then constitute an almost 100 per cent nonfilament count as a favorable omen. These are rare and only perhaps apparent exceptions. All in all, the method is valuable, and as Drs. Mullin and Large have indicated, it warrants more general use.

Dr. John J. Shea, Memphis, Tenn.: Drs. Mullin and Large in their presentation have attracted attention to a new scientific procedure, "the filament and nonfilament count." The filament count is an improvement on the von Schilling count, and it is also superior to the ordinary study made by the total, differential and white count, in arriving at a diagnosis. The toxins that gain their entrance through the nose and throat, especially through the lymphatic tissues of the throat, may either stimulate or paralyze the hematopoietic system: a better knowledge of this system is revealed by a study of the blood in this type of infection. The ordinary white cell has a life of five days in the circulation and the bone marrow houses some mature cells but mostly immature cells. A sudden demand on this system will bring out the mature cells and along with them a few immature cells. By a study of the nonfilament count one is able to show when this demand is greater than the physiologic possibilities of this system. An examination of this type should be made by the same technician and made daily, and in suspected cases as often as every eight hours, because it will show some change as quickly as eight hours. Toxins may either paralyze, as in the first case, or act as a stimulant, as in the second case of Drs. Mullin and Large. The action of the toxins on the white blood cells is not always parallel with their action on the red blood cells. In fact, these two systems are entirely distinct. In this count the differentiation is in all of the white blood cells.

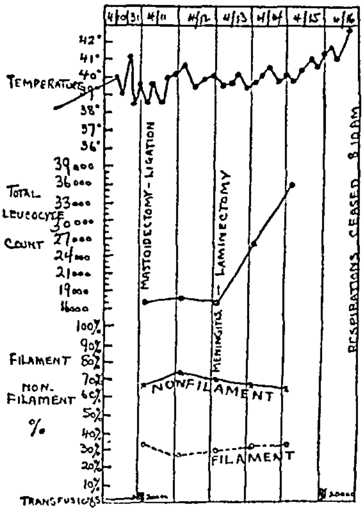

Fig. 14 (case 10).—Acute mastoiditis with jugular thrombosis and meningitis, showing constant high nonfilament count with a fatal termination.

Dr. Austin A. Hayden, Chicago: In a somewhat general way in the last few years the importance of blood counts in nose and throat work has been greatly augmented. In the first place, the recent condition that has received so much study, agranulocytic angina, shows the great importance of making routine blood counts in nearly every sore throat that presents any sort of unusual complications. I was struck with what Dr. Fitz-Hugh mentioned in regard to agranulocytic angina, that there will be a large number of nonfilamented cells in a case that is showing recovery. I believe in the absence of a greatly diminished number of white cells that is quite in conformity with the proposition that Dr. Mullin has brought to the section.

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[7] Winfield, G. A.: Personal communication to the authors.

Dr. W. V. Mullin, Cleveland: I want to emphasize what Dr. Shea has said, that these counts should be made by the same individual. I know that Dr. Large will be disappointed when I go home and tell him that Dr. Shea recommended that these counts be made every eight hours; it is bad enough to make one every twenty-four hours. We have tried to apply this to all types of infection to see whether we could find out anything new about it.

SIGNIFICANT PROBLEMS IN ACUTE ANTERIOR POLIOMYELITIS

GEORGE DRAPER, M.D.
NEW YORK

Although the researches of the past twenty years have exposed many of the complicated secrets of acute anterior poliomyelitis, there are still certain key points which remain unsolved. Of these the most pressing are, first, the exact way or ways of transmission; second, the sure diagnosis of the disease before the moment of invasion of the central nervous system; and, third, a satisfactory method of protective immunization. An answer to the first of these problems would quickly set at rest the present justifiable anxiety of parents, because a real step toward epidemic control would follow. The suspected healthy carrier and the unrecognized mild case not showing paralysis together form a combination which utterly defeats the ends of any but absolute quarantine of entire families. If, in addition to the now firmly established fact of direct transmission from person to person, there be added the possibility of raw food and milk borne infections, successful epidemic control is well nigh out of the question. Consequently, it is quite impossible to answer authoritatively the frequent parental query: "Shall I take the children away?" As matters stand it is doubtless best to advise that flight from a known focus usually is futile. There are too many instances in which, at the new location of hopes for safety, the fleeing family finds itself settled next door to a case which developed on the day of their arrival. Ordinarily it is better to remain in the infected area and rely on the skill of the aroused and alert physicians to make an early diagnosis and administer immune human serum.

The second master key, which indeed is almost fashioned, is that which opens the diagnostic lock in the preparalytic stage. So far as the individual stricken child is concerned, the solution of this point may be the means of saving life or preventing paralysis. The scope and purpose of this paper, however, do not permit a discussion of the clinical picture of the systemic phase of the disease. But there are numerous adequate descriptions of it in the literature.[1]

There is ample evidence from the laboratory experiments of Flexner and Lewis, Flexner and Stewart, Aycock and others[2] that serum from the blood of recovered human patients will neutralize the virus of poliomyelitis and prevent infection in the monkey. But it is essential that the serum should be introduced into the animal at such a time that it may combine effectively with the virus before the latter has laid hold on the tissues of the central nervous system. This time can be arbitrarily controlled in the experimental animal. But the mechanism of the disease in human beings is such that it is difficult to trace and capture the impending moments when the virus, already broken through the barriers of the meningochoroid plexus, is about to attack the cord. These are precious moments indeed, for during them the virus is in transit from the systemic circulation to the anterior horn cells and may be intercepted by the neutralizing serum.

Recently, it has been shown by Andrewes[3] that, when a virus of the filtrable class has made its biologic union with the threatened tissue cell, it is no longer within the reach of a neutralizing serum. Observations relating to the protection afforded by phagocytes to ingested bacteria were made earlier by Rous and Jones.[4] These facts may explain why those physicians who have treated infantile paralysis believe that it is useless to give the serum after muscle weakness has appeared. If it is a fact that a virus which has already combined with its prey-cell is safely entrenched, the unconvincing nature of serum treatment statistics in acute poliomyelitis can be explained.

As Aycock[2] has pointed out in a careful analysis, there are many cases erroneously classed as preparalytic. The muscle weakness, subsequently shown to exist by spring balance tests, simply has not been detected in the acute period. Such cases treated by immune serum declare against its efficacy. But there is another stage in the disease which precedes that of beginning muscle weakness in which there is clear clinical evidence that the anterior horn cells are already intoxicated though not yet seriously injured. This is the stage of ataxic tremor and muscle twitching. It seems to be analogous to the excitement stage of the experimental disease in monkeys.

When this ataxic tremor sets in it is fair to assume that the virus has already entered into conjunction with the anterior horn cells. The physiologic effect of this first entry is one of stimulation. But since this union has been formed the moment may be too late to expect successful neutralizing effects from the serum. Consequently, these cases, should they go on to paralysis, will likewise fail to support the therapeutic value of the serum. Clearly then the brief interval of time between the moment of choroid plexus penetration and the moment of virus-cell union is the precious period during which the serum can be expected to neutralize the invading virus and so prevent paralysis. Not only is this period of short duration, but it is extremely difficult to place accurately in the course of the malady. The accompanying chart indicates the mechanism of the disease; furthermore, it shows the "passage period," when the virus is en route from the systemic circulation and not yet attached to the nerve cells.

It may be asked why the serum should not be given intraspinally at the time of the diagnostic punctures at *A* and *B* when the fluid is still negative. The objection to so doing may perhaps be only theoretical, but it deserves discussion. Flexner and Amoss[5] have shown that the choroid barrier is a remarkably resistant one unless the integrity of its cells has been disturbed by some slight injury. In monkeys even the performance of a lumbar puncture and reinjection of spinal fluid from another monkey may reduce the choroid's defense. But the intraspinal injection of homologous serum abolishes it almost completely. Further experiments in this field indicate that the virus cannot pass from the blood to the cerebrospinal fluid and nervous tissues until there has been an injury to the choroid plexus and meningeal blood vessels and lymphatics. Evidently the natural resistance of these structures to such virus passages must differ greatly in those individuals who become paralyzed and those who do not. Indeed, the natural effectiveness of the choroid barrier may well be the important constitutional factor which protects the patient from paralysis.

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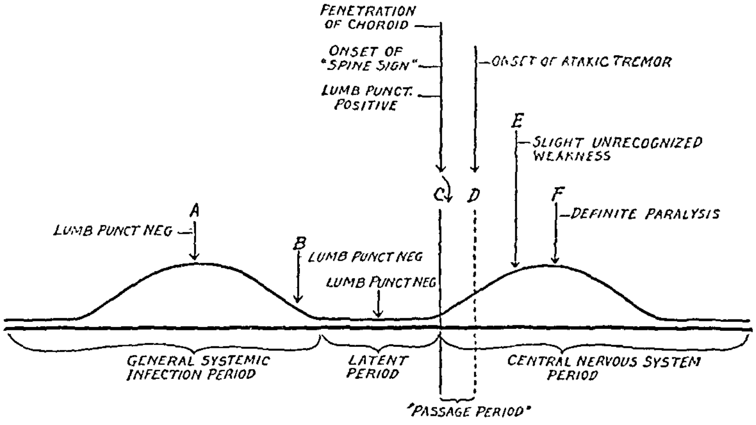
[4] Rous, Peyton; and Jones, F. S.: J. Exper. Med. **23:** 601 (May) 1916.

[5] Flexner, Simon; and Stewart, F. W.: Protective Action of Convalescent Poliomyelitis Serum, J. A. M. A. **91:** 383 (Aug. 11) 1928. Flexner and Amoss: J. Exper. Med. **20:** 249, 1914.

In the human disease, lumbar puncture is essential to provide evidence that the virus has penetrated into the cerebropsinal space. Consequently, it may be argued that if the serum is effective at all it should be injected intraspinally unhesitatingly, whether the fluid is negative or not—that is, at *A*, *B* or *C*. For even if its presence in the cerebrospinal space serves to break down the choroid barrier, it will still be there to intercept the penetrating virus. In the present state of knowledge, however, it would seem wiser to omit the intraspinal dose at *A* or *B*, and to give a large dose, 50 cc. if possible, intravenously or intramuscularly. Doubtless by this procedure certain cases which are not acute poliomyelitis will be treated. But the serum is harmless. Obviously, when the fluid has become positive at *C*, from 15 to 20 cc. of human immune serum should be given at once intraspinally in addition to an intravenous or intramuscular dose.



Significant moments in the clinical course of the disease. The latent period may consume only a few hours or it may last for several days. Sometimes it is so slight and short that the two phases seem to fuse.

Thus it would seem appropriate to combine the maneuver of repeated lumbar puncture with the most refined clinical observation. By this means one should be able to apprehend, within a very short time of its occurrence, the moment when the virus has broken through the choroid barrier and has begun to irritate the meninges. In addition there is good reason to believe that the serum which has been given intravenously at the time of the negative fluid observations in suspicious cases will be effective in preventing paralysis.

Recently a case was brought to my attention which had shown a negative fluid at *A* and *B*, the punctures being separated by eighteen hours. Examination of the child nine hours later showed no evidence of the spine sign. But three hours after this examination the spine sign was present. A puncture then showed increased pressure, 50 cells, of which 60 per cent were polymorphonuclears, and positive globulin. Furthermore, there was no ataxic tremor. It would seem, therefore, that the third puncture had been made during the interval *C-D* or actually within the "passage period." This child received 15 cc. of human immune serum intraspinally and 60 cc. intramuscularly. The temperature was normal twenty-four hours later, and there was recovery without muscular weakness.

In another case, lumbar puncture was not done at *A* when the classic picture of an acute infection existed in a child, aged 7. At that time the drowsy eyed, furtive look of poliomyelitis was clearly present. Four hours later the same picture appeared and lumbar puncture was again postponed. Three hours later a very slight spine sign was noted. Lumbar puncture at that time resulted in a negative fluid. The child was given 25 cc. of human immune serum subcutaneously. Eight hours later the temperature was normal and the child rapidly returned to a state of well being. This instance is mentioned with the obvious proviso that it was not one of acute poliomyelitis. But it is the type of case which causes great perplexity in time of epidemic. If, however, it was an instance of the disease, the puncture must have been done very close to *C*, before the "passage period" in a case which was not destined to cross the *C* line. At present there are no means of making a proved diagnosis of such a case.

A third illustration in which the position of the "passage period" was indicated by the correlation of the clinical picture and the spinal fluid observations is provided by the case of a boy, aged 7, whose parents had not called a physician until the second phase of the disease had set in. The physician made a puncture, and, because he was not equipped to examine the fluid at the bedside, took the specimen to the laboratory. There it was found to contain 150 cells and positive globulin. In an hour another lumbar puncture was made. Fifteen cc. of human serum was given intraspinally and 50 cc. intravenously. Twelve hours later weakness of the right anterior tibial group developed and later still one deltoid failed. But it is significant to note that at the time of treatment the patient exhibited marked ataxic tremor, showing that the anterior horn cells were already involved with the virus. Clearly in this case the therapeutic puncture was done at a time subsequent to the line *D*, or after the end of the "passage period."

These considerations suggest why serum therapy apparently often fails to check paralysis even though it is administered in what is clinically the preparalytic stage. Not only is serum ineffective after paralysis has appeared, but it may well be too late to hope for success after the ataxic tremor has developed. However, at present there is not sufficient knowledge to justify withholding vigorous serum therapy at this stage. Serum should, of course, be given when ataxic tremor is present.

So far as protective immunity for human beings is concerned, there is not yet sufficient experience on which to base an opinion. Flexner and Stewart[5] have shown that by the use of human immune serum monkeys can be protected for short periods of from four to five days. But the experimental disease, because of direct cerebral inoculation, is a far more drastic test presumably than is the more slowly developing human malady. These authors therefore recommend the subcutaneous injections of from 20 to 25 cc. of serum in children who have been obviously exposed in an area of epidemic activity. Failing an adequate supply of serum, there is no objection to giving exposed children 20 cc. of the father's whole blood intramuscularly.

To sum up, then, it can be said that a preparalytic, indeed, a preataxic tremor stage diagnosis of poliomyelitis can and should be made. The time relationships between the systemic phase, the "passage period" and the ataxic tremor phase are fairly well indicated by the correlation of clinical signs and spinal fluid observations. Furthermore, it has been definitely shown that immune human serum can block paralysis in monkeys infected with poliomyelitis virus. Having these facts at one's disposal, one should be able to prevent paralysis except in those comparatively few cases which display so slight and transient a systemic phase that the second or central nervous system phase arrives apparently as the first sign of illness.

33 East Sixty-Eighth Street.

GASTRIC SECRETION AFTER STIMULATION WITH HISTAMINE

IN THE PRESENCE OF VARIOUS TYPES OF GASTRIC AND DUODENAL LESIONS [*]

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Every physician interested in gastric disease today is desirous of knowing whether any advantage exists in the use of histamine instead of the Ewald meal as a stimulus to gastric secretion. The problems presented are: (1) whether this new test is so much more helpful diagnostically that it should replace the Ewald meal; (2) whether there is any one field of gastro-intestinal disease in which it can give information of outstanding value, other than in differentiating true and false anacidity, a field in which its value has been accepted since the work of Gompertz and Vorhaus,[1] Andresen,[2] and Bockus and Bank,[3] and (3) whether Bloomfield and Polland[4] are justified in attaching to determinations of volume and acidity an importance great enough to distinguish, at times, benign from malignant lesions.

With the idea of gaining an answer to these questions, parallel data were collected concerning 120 patients the majority of whom were suffering from peptic ulcer or from carcinoma of the stomach. These data were critically examined to see wherein there was agreement and wherein difference existed. Obviously, if the majority of the data demonstrated agreement there could be little reason for changing to a new procedure.

In order to get more complete information on the composition of the gastric juice, the total chloride and total base contents were determined in addition to the values determined in the usual routine of chemical examination. This seemed particularly desirable in view of the recent work of Bulger and his associates,[5] who found that the total chloride, before and after stimulation (water meal), remained practically constant, and argued that the secretion of hydrochloric acid depended on inhibition of secretion of base rather than on increase in secretion of chloride. If the concentration of chloride remains constant, it should prove more reliable than concentration of acid, which varies with the stimulus, in arriving at the true secretory capacity of the stomach.

Tests were made on thirty-five patients in whose stomachs no demonstrable lesion was found, on forty with duodenal ulcer, on eleven with benign gastric ulcer, and on thirty-four with gastric carcinoma.

Continuous aspiration was practiced, and analyses were made at intervals of ten minutes, as advocated by Bloomfield. The fasting stomach was emptied as completely as possible. After two or three intervals of ten minutes each, during which the fasting content was aspirated, 0.1 mg. of histamine, in the form of acid phosphate, for each 10 Kg. of body weight was injected hypodermically. From three to seven fractions were secured after the histamine had been injected. The patient was cautioned against the swallowing of saliva, and frequent changes in his position were made. Cases in which the content was bile-stained were not included in this group.

The concentration of free hydrochloric acid was determined by titration, Toepfer's reagent being used. The total acidity was determined by titration, phenolphthalein being used as an indicator. The value is expressed in terms of cubic centimeters of tenth-normal sodium hydroxide required to produce the end point in 100 cc. of filtered gastric content. The method of Stadie and Ross was used for the determination of total base, and total chlorides were determined by the procedure of Wilson and Ball.

In the following consideration,[5a] the concentration of free hydrochloric acid and of total chloride following administration of histamine refers to the highest concentration of each following stimulation with histamine. The volume may be defined as the total volume obtained during the first three periods of ten minutes following administration of histamine. It was thought that by taking three samples the error involved in removing any one sample would be lessened.

COMPARATIVE VALUES OF CONCENTRATION OF FREE HYDROCHLORIC ACID FOLLOWING ADMINISTRATION OF HISTAMINE AND FOLLOWING THE EWALD MEAL

Bar diagrams (chart 1) representing the frequency distribution of values for free acidity obtained with the Ewald meal in cases of duodenal ulcer, gastric ulcer or gastric carcinoma show that there is a range of acidity between 1 and 39 (units of free acid) associated with all three lesions. Of the carcinomas 42.8

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[*] From the divisions of Medicine and of Chemistry, the Mayo Clinic.

[*] Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Gompertz, L. M., and Vorhaus, M. G.: Studies of the Action of Histamine on Human Gastric Secretion, J. Lab. & Clin. Med. **11:** 14-21 (Oct.) 1925.

[2] Andresen, A. F. R.: Fractional Gastric Analysis with Histamine, Tr. Am. Gastro-Enterol. A., 1926, pp. 53-84.

[3] Bockus, H. L., and Bank, Joseph: Value of Histamine as a Test for Gastric Function, Arch. Int. Med. **39:** 508-519 (April) 1927.

[4] Bloomfield, A. L., and Polland, W. S.: The Diagnostic Value of Studies of Gastric Secretion, J. A. M. A. **92:** 1508-1513 (May 4) 1929.

[5] Bulger, H. A.; Stroud, C. M., and Heideman, M. L.: Studies of the Chemical Mechanism of Hydrochloric Acid Secretion: Electrolyte Variations in Human Gastric Juice, J. Clin. Investigation **5:** 547-560 (June) 1928. Bulger, H. A., and Allen, D. S.: Studies on the Mechanism of Gastric Hydrochloric Acid Secretion, Proc. Soc. Exper. Biol. & Med. **24:** 902-903 (June) 1927.

[5a] By free acidity is meant free hydrochloric acid.

per cent, of the gastric ulcers 50 per cent, and of the duodenal ulcers 20.5 per cent fall within this zone. With histamine there is a range of acidity between 20 and 99 (units of free acid) with all three lesions. Of the carcinomas 38.5 per cent, of the gastric ulcers 100 per cent, and of the duodenal ulcers 40 per cent fall within this zone. This obviously means that, when in a given case one finds that the acidity lies in this zone, one gains no help in the attempt to distinguish the disease present from the other two diseases. It does not mean that when, in a given case, one finds low acidity, not lying in the zone, one can be certain that a malignant lesion is present, for benign gastric ulcers are associated with hypo-acidity; nor does it mean that, when the value for free hydrochloric acid is higher than 99, duodenal ulcer rather than malignant obstruction at the pylorus is present. This is as true with the stimulus of histamine as with the Ewald meal. Moreover, while the range of free acidity is greater with histamine and the acidity in the majority of cases of gastric carcinoma is separated more widely from that of the majority of cases of duodenal ulcer with reference to acidity, the overlapping after histamine has been used includes a greater percentage of cases than when the Ewald meal is used. It therefore does not appear that values for free acid following administration of histamine possess an advantage from a diagnostic standpoint over values obtained with the stimulus of the Ewald meal.

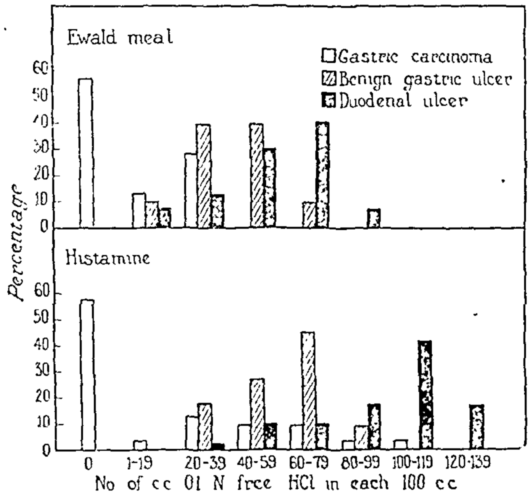

Chart 1.—Frequency distribution of the concentration of free hydrochloric acid after the Ewald meal and after administration of histamine.

The mean concentrations of free acid obtained in cases of duodenal ulcer, benign gastric ulcer, and gastric carcinoma following the Ewald meal were 54.5 ± 2.1, 39.6 ± 3.3, and 10.1 ± 1.4, respectively, and following administration of histamine 102.18 ± 4.2, 58.80 ± 3.8, and 21.93 ± 3.5. This means that, irrespective of the stimulus used, gastric carcinomas have a tendency toward low free acidity and duodenal ulcers toward high free acidity. In the cases of gastric ulcer in this small group, the free acidity lay between that in cases of duodenal ulcer and that in cases of carcinoma. In fact, it would seem that there is a definite relationship between the concentration of free acid following the Ewald meal and following administration of histamine. In order to test this point, a graph (chart 2) was constructed showing the correlation between the highest concentration of free acid after administration of histamine and the highest concentration of free acid after the Ewald meal; it involves thirty-two patients without disease in the stomach, thirty-eight patients with duodenal ulcer, ten patients with benign gastric ulcer, and eleven patients with gastric carcinoma, a total of ninety-one. For the total group, the correlation is good (coefficient + 0.672 ± 0.04). The correlations are likewise significant for the patients without disease in the stomach and duodenum (coefficient + 0.759 ± 0.05) and for the patients with duodenal ulcer (coefficient + 0.392 ± 0.05). The correlations for the patients with benign gastric ulcer (coefficient + 0.231 ± 0.11) and for the patients with gastric carcinoma (coefficient + 0.431 ± 0.17) are not high. These studies of correlation suggest that the Ewald stimulus is probably as reliable as histamine in producing an average response in a group of cases.

VOLUME OF SECRETION

A study of secretory volume gives parallel information. When one plots on the same coordinates (chart 3) bars representing the frequency distribution of values for volume of secretion in cases of duodenal ulcer, gastric ulcer and gastric carcinoma, one finds that there is a range of volume from 40 to 179 cc. common to all three lesions. Of the carcinomas 66.7 per cent, of the gastric ulcers 91.9 per cent, and of the duodenal ulcers 92.1 per cent fall within this range of volume. This means that if, in a given case, the volume of secretion falls between 40 and 179 cc., no information of absolute value in differentiating the three diseases is obtained. Volumes of less than 20 cc. might be presumptive evidence of a malignant growth, but certainly higher volumes do not rule it out.

The mean volumes for the groups of duodenal ulcer, gastric ulcer, and carcinoma were 108.52 ± 5.2, 93.72 ± 10.4, and 63.96 ± 2.7 cc., respectively. In duodenal ulcer the tendency is toward high volume, and in gastric carcinoma toward low volume, whereas in benign gastric ulcer the tendency is to volumes between the other two. The tendency in secretory volumes is apparently similar to the tendency in the concentration of hydrochloric acid.

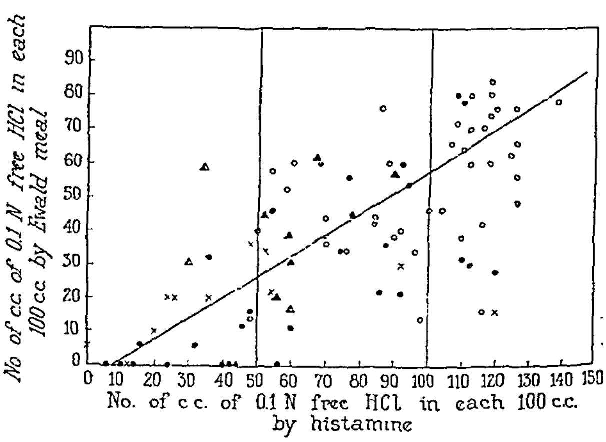

Chart 2.—Correlation between the highest concentration of free hydrochloric acid after administration of histamine and after the Ewald meal: dot, no disease in stomach or duodenum; circle, duodenal ulcer; triangle, gastric ulcer; cross, gastric carcinoma.

In order to study the significance of the mean volume and acidity in these three conditions, a graph (chart 4) was made showing the correlation between the highest concentration of free hydrochloric acid and the total volume for the first three periods of ten minutes following administration of histamine to thirty-five patients who did not have disease of the stomach, to thirty-eight patients who had duodenal ulcer, to eleven patients who had benign gastric ulcer, to thirteen patients who had gastric carcinoma with free acid in the gastric secretion, and to the total group. The variations in volume of secretion for each concentration of free acid are large. This seemingly minimizes the importance of the association of high mean volumes and high free acidity in duodenal ulcer, of moderately high mean volumes and low mean free acidity in benign gastric ulcer, and of low mean volumes and low free acidity in gastric carcinoma.

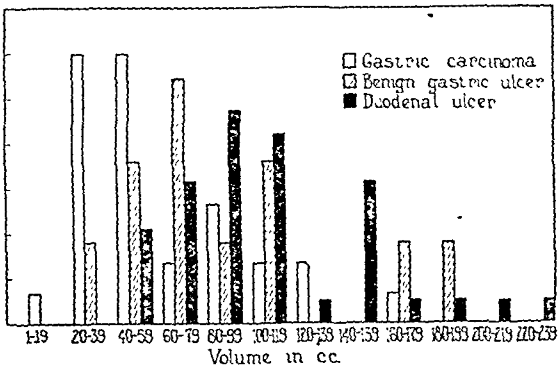

Chart 3.—Frequency distribution of volume of secretion in cases of gastric carcinoma, benign gastric ulcer and duodenal ulcer.

Horizontal and vertical lines, drawn through the center of the chart, show that although there is a definite tendency for the concentration of acid in cases of duodenal ulcer to be above 70, not only do the acidities vary, but also the volume may be either more or less than 100 cc.; although in cases of gastric ulcer the acidity is for the most part below 70, it may be above 70 and the volume varies markedly; although in cases of gastric carcinoma in which there is free hydrochloric acid in the gastric juice the acidity for the most part is below 70, the free acidity may be above this point, and the volume may be large or small regardless of the degree of free acidity.

If the cases in which the volume falls at the extremes of the range of acidity are examined, it is found that an abnormally high volume is obtained for the most part in cases of peptic ulcer or carcinoma, conditions which are commonly associated with retention of secretion in the fasting stomach, due to obstruction, pylorospasm or gastrospasm. If this content of the fasting stomach is not completely emptied before histamine is given, the retained secretion is not uncommonly aspirated later to increase abnormally the volume obtained after administration of histamine. Small volumes of gastric secretion may be due to technical error in not obtaining all the secretion, or perhaps to abnormally rapid emptying.

In spite of disturbances in motor function and technical error there is correlation between volume and acidity. This belief is based on the definite correlation between volume and acidity in those groups which contain a significant number of cases, that is, in the total group of cases (coefficient + 0.545 ± 0.017), in the cases of duodenal ulcer (coefficient + 0.346 ± 0.09), and in the cases in which no disease could be demonstrated in the stomach or duodenum (coefficient + 0.495 ± 0.09). This belief is further strengthened by the significant correlation (coefficient + 0.545 ± 0.017) obtained by Vanzant,[6] using figures obtained in 135 aspirations by tube in dogs. Further studies on a larger series of persons without gastric complaints of any kind will be necessary to prove or disprove the existence of a close correlation. In pathologic cases the technical difficulties of complete aspiration, as well as the influence of obstruction, pylorospasm and gastrospasm, will make interpretation of the significance of volume difficult.

CONCENTRATION OF TOTAL CHLORIDE

To determine whether the concentration of total chloride gives information that the concentration of free hydrochloric acid does not give, concerning the secretory capacity of the stomach, the correlation between the highest concentration of chloride and of free hydrochloric acid following stimulation with histamine was studied in thirty-five cases in which there was no organic disease in the stomach or duodenum, in forty-one cases of duodenal ulcer, in eleven cases of benign gastric ulcer, and in thirteen cases of gastric carcinoma in which free acid was present in the gastric juice. The correlation was very high in the total group (coefficient + 0.957 ± 0.005). The correlation was likewise high in those cases in which there was no organic disease in the stomach or duodenum (coefficient + 0.820 ± 0.037), in the cases of duodenal ulcer (coefficient + 0.787 ± 0.04), and even in the cases of gastric carcinoma associated with free acid in the juice (coefficient + 0.771 ± 0.08). Of the last there were only thirteen available for study. In the cases of benign gastric ulcer, the correlation was not so good (coefficient + 0.269 ± 0.059); in a large group of such cases this lesser correlation may or may not prove significant. The correlation between the highest concentration of total chloride and the highest concentration of free hydrochloric acid in the several groups is so high that, when the concentration of free acid after administration of histamine is known, little, if any, extra information comes from the estimation of chlorides. For clinical purposes the estimation of total chlorides does not appear to give a more accurate idea of the secretory capacity of the stomach than the estimation of the concentration of free hydrochloric acid.

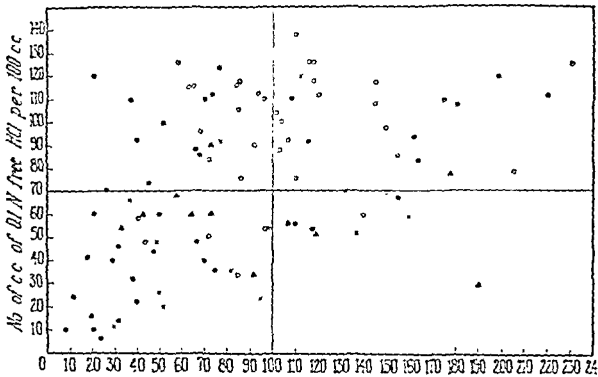

Chart 4.—Correlation between the volume of secretion during the first thirty minutes and the highest concentration of free hydrochloric acid following administration of histamine: dot, no disease in stomach or duodenum; circle, duodenal ulcer; triangle, gastric ulcer; cross, gastric carcinoma.

A possible exception to this statement occurs in an interesting group of four cases which are definitely separated from the lower end of the zone of correlation (chart 5). Three of these cases were classified as instances of functional derangement and one as a case of carcinoma. In each case the concentration of total chloride was much greater than would be expected from the concentration of the free acid. Titration of the fasting secretion gave a relatively low value for chloride, absence of free hydrochloric acid, and a very high concentration of base. Following administration of histamine, the chloride increased markedly, to a concentration comparable to acidity of 40 to 70; the concentration of base was not lowered appreciably in contrast to the usual change encountered with increasing acidity. The excess of base present seems to mask the secretion of free acid until the excess base is neutralized. Similarly, in certain cases of anacidity it has been noted that an abnormally high value for base will persist, and a rise in concentration of total chloride will follow stimulation with histamine. Such anacidity may be false, the base masking the acid secretion. Several possible explanations of the presence of excess base are available. Such a stomach may secrete juice rich in base. Duodenal regurgitation, without bile pigment, a frequent occurrence according to Medes and Wright,[7] may have taken place. Increase in concentration of chlorides following stimulation with histamine may serve to distinguish pseudo-achlorhydria from true achlorhydria, and pseudohypochlorhydria from true hypochlorhydria. This distinction rarely will be of clinical importance.

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[6] Vanzant, Frances R.: Personal communication to the authors.

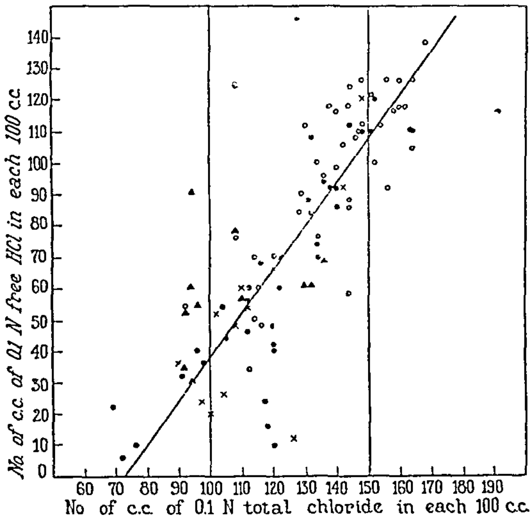

Chart 5.—Correlation between the highest concentration of total chloride and of free acid following stimulation by histamine: dot, no disease in stomach or duodenum; circle, duodenal ulcer; triangle, gastric ulcer; cross, gastric carcinoma.

THE EFFECT OF GASTRO-ENTEROSTOMY OR RESECTION OF THE STOMACH

Duodenal or jejunal regurgitation plays an important part in reduction of acidity after gastro-enterostomy or resection of the stomach. Indeed, it may play the most important part except in those instances in which a portion of the acid-secreting region has been resected; low or normal acidity may be masked by the neutralizing influence of the regurgitated duodenal or jejunal content. After gastro-enterostomy or resection of the stomach the increased concentration of hydrochloric acid, following administration of histamine, should often disclose acidity when the Ewald meal does not. The rise in concentration of total chloride and the fall in concentration of total base, associated with increasing free acidity, have usually persisted after resection of the stomach or gastro-enterostomy. The concentration of total chloride and of free acid postoperatively has been lower, and the concentration of base higher, whenever bile has been found in the secretion from such stomachs. In the absence of regurgitation of bile, the degree of free acidity has not been materially affected, even when approximately half of the stomach has been resected (chart 6). This would seem to indicate that the secretory capacity has not been reduced because of elimination of the hormonal or humoral influence of the antral portion of the stomach. Priestley[8] has shown by similar procedures that, in the dog, removal of the antral portion of the stomach does not influence the concentration of free acid obtained from the fundic portion.

In only 20 per cent of the cases so far studied, in which the stomach has been resected, has anacidity been present. With the Ewald meal, this percentage would probably be higher. A few of the patients with anacidity were in poor condition physically, and the return of health may witness a return of secretion of free hydrochloric acid.

SUMMARY

In our experience, histamine is of value in distinguishing true from false achylia. However, histamine failed to cause a secretion of free acid in one case in which the Ewald meal did cause such secretion; it produced secretion of free hydrochloric acid of a concentration less than that evoked by the Ewald meal in two other cases, and it produced concentration only equal to or within 10 points of that evoked by the Ewald stimulus in fourteen cases. Gaither[9] has had the same experience, using the Ewald and alcohol meals and histamine.

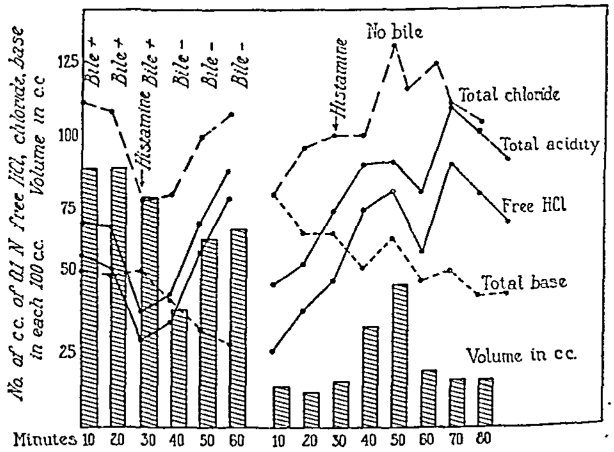

Chart 6.—Gastric secretion following administration of histamine, before and after partial gastrectomy (posterior Polya) in a case in which there were gastric and duodenal ulcers.

As Henning[10] has stated, the histamine test may distinguish the more serious forms of secretory disturbance from those of a transitory nature, but it does not always give conclusive information as to the underlying anatomic lesion or the prognosis. He cited cases in which repeated gastric analysis with caffeine test meals gave evidence of normal gastric secretion in cases in which secretion had not followed previous administration of histamine. It would appear that histamine does not always evoke a maximal response and that the constancy of the response can be questioned.

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[7] Medes, Grace; and Wright, C. B.: Studies on Duodenal Regurgitation: J. J. Clin. Investigation 6: 403-423 (Dec.) 1928.

[8] Priestley, J. T.: The Part Played by the Pyloric Mucosa in Gastric Acidity, unpublished data.

[9] Gaither, E. H.: Diagnostic Value of Secretory Function in Gastric Disease: Various Methods Studied and Compared, unpublished data.

[10] Henning, N.: Neuere Ergebnisse in der Diagnostik und Therapie der Magenkrankheiten, Med. Klin. 8: 269-273 (Feb. 20) 1931.

In our experience, it is not apparent that the response of gastric secretion to histamine is of greater value than the response to the Ewald meal in the differential diagnosis of peptic ulcer and gastric carcinoma. In cases in which reduced concentration of free acid and reduced volume have diagnostic significance, as in gastric carcinomas, the Ewald meal gives information which compares favorably with that obtained after the use of histamine. Also, we have encountered cases of gastric carcinoma in which the concentration of free acid and the volume have been almost as great as those obtained in cases of duodenal ulcer, contrary to the experience of Bloomfield and Polland.

So far as the volume of gastric secretion is concerned, there appears to be a significant correlation between volume and free acidity; on the other hand, the volume of secretion, as aspirated, varies widely in all types of lesions studied. Its diagnostic significance is of such limited value and the possible errors in estimation are so great that it does not seem to add much information of diagnostic value.

There is such a high correlation between the highest concentration of total chloride and of free acid, following stimulation by histamine, that determinations of total chloride following administration of histamine offer little extra information concerning the secretory activity of the stomach and do not add sufficiently to the practical value of histamine as a test of secretory capacity to warrant the estimation of concentration of chloride.

The advantages of the stimulus of histamine over the Ewald meal are not great enough to warrant the adoption of the fractional method with stimulation by histamine as a routine.

The value of histamine in the study of chemical values after resection of the stomach, or gastro-enterostomy, lies in disclosing free acidity, masked by the neutralizing influence of the base in the regurgitated duodenal or jejunal juice. Additional evidence of the unimportance of the humoral or hormonal influence of the antral portion of the stomach in maintaining the secretory capacity of the stomach is mentioned briefly.

ABSTRACT OF DISCUSSION

DR. ERNEST H. GAITHER, Baltimore: During the past year, I have been engaged in research regarding the diagnostic value of secretory function in gastric disease, and I undertook the study of the various methods most frequently employed—that is to say, the Ewald, alcohol and histamine tests—by the fractional method. The results of this investigation were presented some weeks ago at the annual meeting of the American Gastro-Enterological Association; in this study a comparison was made between the acidities obtained in 100 cases comprising the following pathologic entities: achylia gastrica, adhesions (postoperative; plastic gastric operations), colitis, gastric neurosis, hepatobiliary disorders (cholecystitis; cholelithiasis), ptosis and atony, and peptic ulcer. I shall quote a few of the conclusions: "The claim that histamine is vastly superior to the Ewald meal as a stimulant of acid secretion of the gastric glands has been disproved." "It would really appear that the application of bread and water as a test of gastric gland secretion is more physiologic than the subcutaneous application of the foreign body histamine, and that it presents a result more in keeping with normal bodily economy." And here I may present the incontrovertible fact that nature never depends on histamine injections to bring about a normal response of the gastric secretory gland. "Histamine does in a number of cases offer an advantage in establishing the fact that the glands do possess the power of acid secretion when after the Ewald or alcohol test an achylia would seem to be present." These conclusions show that the authors and I are in complete agreement on the point stressed by the former: "The only possible value of histamine seems to be in the differentiation of true from apparent anacidity and hypo-acidity, but even here it is not infallible."

DR. MARTIN G. VORHAUS, New York: Medical literature is full of instances in which creditable research has fallen into disrepute through misapplication at the hands of overenthusiastic advocates. When the late Dr. Gompertz and I first announced the value of histamine as a stimulant of the hydrochloric acid secretion of the stomach, we were quite cautious in our claims. Our original conclusions stated that its value lay in a differential test between pseudochlorhydria and true achlorhydria. Since then, there have been many reports on its value as a routine method of gastric analysis. The paper which has just been read should go far in negating these unwarranted claims. The hydrochloric acid response to histamine has been of considerable aid in the inspired investigations of Minot, Castle and their co-workers on pernicious anemia. Recently, a case has been reported in which, during a remission in the course of pernicious anemia, the histamine response gave almost a normal acid curve in what had been until then a totally achlorhydric stomach. In addition to the clinical evidence, there is now on record carefully checked experimental evidence to show that histamine in all probability stimulates only the oxyntic or acid-producing cells. The reports from Babkin's laboratory and the work of Gilman and Cowgill confirm experimentally our original observations. In our early work on histamine, we soon noted that, contrary to the fairly regular acid curve following histamine injection, there was no regularity of peptic activity, and in two of our reported cases we demonstrated a slight acid response without at any time being able to demonstrate peptic activity. It is apparent that the gastric secretory response following the injection of histamine is not a criterion of the secretory capacity of the entire gastric mucosa. The value of the histamine test lies in the high degree of accuracy with which it differentiates the pseudochlorhydria from the true achlorhydria.

DR. A. C. IVY, Chicago: The histamine test is the best method for differentiating between what I call relative and absolute achylia. If the gastric glands do not respond to 1 or 1.5 mg. of histamine in the form of the acid phosphate, one is assured that the patient has an absolute achylia, but from this condition through the various degrees of hyposecretion one finds all the variations in the histamine response that one finds in the response of normal individuals to an Ewald meal or any other kind of meal. Dr. Gaither has said that histamine is a foreign body, a foreign agent. I have taken that position for many years, but recently discoveries have been made which have caused me to take the position that histamine is gastrin. My associates and I have been successful recently in isolating the active principle of acid extracts of the pyloric mucosa in the form of histamine sulphate. From the sulphate we prepared the picrate and it had the same melting point as histamine picrate. We have other evidence which causes us to state that histamine is what has been called gastrin; and if histamine is not the gastric hormone, either there is no gastric hormone or no one has ever isolated it or extracted it from gastric mucosa. We have yet to perform vividialysis experiments, and if we obtain histamine in our dialysates from circulating blood, that will mean that histamine is the gastric hormone. On previous occasions I have shown with Dr. Javois that histamine may possibly be the gastric hormone because it can be injected at a rate of 0.002 mg. per kilogram per minute without causing a change in blood pressure or a peripheral dilatation, but still causing a secretion of gastric juice. These observations, which are recent (within the last six months, although we have been working on the problem for the last four years), have led me to the hypothesis that histamine is a general synergistic hormone in digestion. It facilitates not only the other processes concerned in the formation of gastric juice but also the formation of pancreatic juice and increases the formation of succus entericus. It increases motility. None of these observations have been correlated before. I have been interested in the gastric hormone and I didn't want it to be histamine because that was a vasodilating substance, but such a substance in physiologic amounts will obviously lead to an improvement in digestive processes.

Dr. Irving Gray, Brooklyn: The comparative changes in gastric acidity and urinary reaction after the injection of histamine were noted by Dr. Matzner and myself in a study of twenty-five patients. Approximately 50 per cent of the patients who had free hydrochloric acid in the gastric extractions after the injection of histamine had a definite urinary alkaline tide. If an indirect study of gastric acidity is to be made and the estimation of urinary acidity (alkaline tide) is the test decided on, histamine cannot be used as the gastric stimulant. The use of steero-bouillon cubes in warm water will produce a definite postprandial alkaline tide in about 90 per cent of the patients. We are using histamine in those cases only when it is of paramount importance to determine whether or not there is a true or false achlorhydria.

Dr. Frank Smithies, Chicago: At what time was it shown that an Ewald meal excited acid secretion or resulted in achylia? Clinically, this is an important factor with or without the use of histamine. Some individuals have a rapid secretion of acid after meal ingestion, whereas others have marked delay: the acid secretion may not take place until after the first hour or even longer. Yet such patients do not have achylia, as so often they are reported, when a time interval of only an hour is considered as a suitable period of observation. I have not used the Ewald meal or its modification, the alcohol meal, or any of the mixtures, for more than five years. No one can say that the Ewald meal gives the individual stomach a physiologic test, with respect either to secretion or to motility. With an Ewald type meal, one exhibits to the stomach a carbohydrate meal of little bulk load, whereas the function of the stomach is that of the initiation of digestion of proteins. Yet one is endeavoring to determine the secretory response of the stomach by a wholly physiologically incorrect stimulus. The evidence obtained is largely artificial and represents only what secretion and motility a carbohydrate meal excites at a particular time in the stomach of an individual patient. With an Ewald type meal, the volume load most certainly is not adequate. Such a meal begins to be discharged from the stomach sometimes before the patient finishes eating; consequently, it does not give a degree of work adequate to enable one to judge what a stomach is capable of doing in circumstances of normal food load. To meet these obvious defects in test meal studies I have persisted in carrying out my secretory and motor observations on full mixed meals of the patient's own choosing on proved empty stomachs and allowing an interval of from three to five hours as a digestive phase; during that period the acidity, chlorides and residue are determined by specimens withdrawn at intervals of fifteen minutes. When one follows this physiologic procedure one is quite surprised to discover that many individuals who previously had extremely suspicious acid secretion, low or high, rapidly resolve themselves into patients who return normal secretory and motor curves.

Dr. A. F. R. Andresen, Brooklyn: The paper and the first discussion have naturally led to a consideration of whether gastric analysis is of any value in diagnosis, and some of the speakers have implied that those who have been in favor of using histamine have had a wrong idea of its importance. If they had read the context of the articles of both Dr. Gompertz and Dr. Vorhaus and of my article they would realize that we place little stress on the curves of acid secretion following the histamine injection. We call particular attention to the value of the other things we discover by means of gastric analysis. The value of the study of motility and admixtures, as well as of the secretory curves, was gone into in these papers. We feel that the acid secretion following the injection of histamine or any other stimulus, whether a full meal, an Ewald meal or alcohol, is simply a physiologic response of the gastric glands to a stimulus and any changes from the normal indicate disease. The only real value in a study of the acid secretion lies in determining whether the stomach is secreting or not. Histamine gives definite information as to whether the stomach can secrete hydrochloric acid; it is harmless to use, and Dr. Ivy has told us that it is practically identical with the gastric hormone and therefore a "physiologic substance." I do not consider it logical, therefore, first to use the unphysiologic Ewald meal as a routine in all gastro-intestinal studies, and, on failing to obtain hydrochloric acid secretion in this manner, to follow with a histamine injection. It means two gastric analyses instead of one and overemphasizes the value of acid determinations.

Dr. M. W. Comfort, Rochester, Minn.: Reduction in acidity follows the usual operative procedure; however, the reduction in acidity is usually not the result of any change in the secretory capacity of the stomach but of such factors as duodenal or jejunal regurgitation, factors on which not enough emphasis has been placed. With regard to the duration of the meals about which Dr. Smithies has asked, the Ewald meal lasted an hour and the histamine test from thirty to seventy minutes after the injection of histamine. With any meal, if the little flare up of acidity which sometimes appears in incomplete anacidity is to be caught, the observations must be prolonged. I agree with Dr. Andresen that there are no objections to the use of histamine in place of the Ewald meal if the limitations of histamine are recognized. However, except in the pseudo-anacidities, it does not seem to give worth while information of diagnostic value which the Ewald meal does not give.

STREPTOCOCCAL AGGLUTININS IN RHEUMATOID ARTHRITIS

PRELIMINARY REPORT *

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In reviewing the literature dealing with the bacteriology of rheumatoid arthritis,[1] one is impressed by the diversity of the results obtained. While the relation of focal infection to rheumatoid arthritis is generally recognized, there is doubt in the minds of many as to whether the joint manifestations are actually metastatic infections or whether they are merely an expression of some toxic or allergic influence. In respect to the bacteriologic agent responsible for the disease, the majority of investigators look on the streptococcus as the exciting cause, but there is considerable disagreement as to which type is responsible. Some workers consider rheumatoid arthritis a *Streptococcus hemolyticus* infection while others look on the indifferent or green producing streptococcus as the causative agent. Still other investigators believe that the staphylococcus, the diphtheroid bacillus or other micro-organisms as well as the streptococcus can produce deforming arthritis. Although a number of workers have found streptococci in the blood and joints of patients with rheumatoid arthritis, little effort has been made to study either the biologic relationship of the streptococci isolated or the immune bodies in the patients' serums.

In a previous paper, in collaboration with Cecil, we[2] have reported the isolation of streptococci from the

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* This investigation was supported in part by the Committee for the Encouragement of Medical Research.

* From the Second (Cornell) Medical Division and the Pathological Laboratories of Bellevue Hospital, the Cornell Clinic, and the Department of Medicine, Cornell University Medical College.

* Since this article was submitted for publication in December, 1930, the details of our agglutination technic have appeared in print: Nicholls, Edith E., and Stainsby, W. J.: J. Clin. Investigation **10:** 323 (June) 1931.

[1] Rheumatoid arthritis is considered by us as synonymous with chronic infectious or atrophic arthritis.

[2] Cecil, R. L.; Nicholls, Edith E., and Stainsby, W. J.: Bacteriology of Blood and Joints in Chronic Infectious Arthritis, Arch. Int. Med. **43:** 571 (May) 1929.

blood and from the joints of a high percentage of patients with rheumatoid arthritis. Of the streptococcal strains thus recovered, 83.3 per cent were culturally identical and were designated as "typical strain" streptococci; on laboratory mediums they presented the appearance of attenuated hemolytic streptococci.

Much to our satisfaction and somewhat to our surprise, the "typical" cultures were cross agglutinated by homologous immune rabbit serums. These observations led to a search for specific streptococcal agglutinins in the serums of patients with chronic infectious arthritis and the present communication gives the results obtained in this investigation.

Agglutination reactions were carried out with the serums of 110 patients with rheumatoid arthritis against "typical strain" streptococci. Of the 110 serums examined, 103, or 93.6 per cent, showed definite agglutination to a titer of 1:640 or higher, frequently as high as 1:5,120. Control agglutinations were carried out in the same way with the serums of a large number of normal individuals and patients with other diseases. Patients with rheumatic fever, osteo-arthritis,[3] and gonococcal arthritis failed to give positive agglutination reactions to a titer above 1:160; those with acute tonsillitis and acute bronchitis occasionally gave reactions as high as 1:640. In view of the fact that infections of the upper respiratory tract are frequently associated with rheumatoid arthritis, these observations are particularly interesting. Agglutination reactions with the serums of patients having various other febrile and nonfebrile diseases practically never gave titers above 1:320 with the "typical strain" streptococci.

In order to check the specificity of the streptococcal agglutinins, similar tests were performed with the serums of patients with rheumatoid arthritis against various other pathogenic organisms, such as pneumococcus types 1, 2 and 3, *Staphylococcus albus* and *aureus, Bacillus coli,* and *Streptococcus viridans,* as well as hemolytic streptococci from various other sources. A hemolytic streptococcus from a case of scarlet fever and a hemolytic streptococcus from a case of erysipelas gave agglutination reactions comparable to those obtained with "typical strain" streptococci, although the end reactions were at lower dilutions. With two exceptions, hemolytic streptococci recovered from the throats of normal individuals and of patients with various diseases gave negative agglutination reactions. With one arthritic serum, these exceptional strains gave agglutination reactions at a titer of 1:640.

The almost constant presence of these specific streptococcal agglutinins in the serums of patients with rheumatoid arthritis can be made of considerable practical value in clinical medicine, especially when used in conjunction with the sedimentation test.[4] The agglutination test for rheumatoid arthritis is quite as specific as the Widal test for typhoid. Indeed, in our experience the agglutinins have run to a much higher titer in the former than in the latter disease. These tests are carried out as a routine on every patient admitted to the arthritis department of the Cornell Clinic and are repeated at intervals of six weeks thereafter. The agglutination reaction has been found a valuable aid in differentiating rheumatoid arthritis from chronic gout, gonococcal arthritis, osteo-arthritis and other joint diseases. The sedimentation reaction offers a means of measuring the activity of the disease when the patient first presents himself for examination. By taking the test at regular intervals, an estimate of the value of the therapeutic measures given can be obtained.

CONCLUSIONS

1. The serums of patients with rheumatoid arthritis give a strong specific agglutination reaction with "typical strain" streptococci recoverable from the blood and joints of patients with rheumatoid arthritis. Such a reaction suggests that this type of hemolytic streptococcus is of etiologic importance in the disease.
2. A close antigenic relationship between "typical strain" streptococci and the hemolytic streptococci from scarlet fever and erysipelas is established.
3. Rheumatoid arthritis can be differentiated from osteo-arthritis, chronic gout, gonococcal arthritis and other joint diseases by the agglutination reaction.
4. The agglutination reaction, when supplemented by the sedimentation test, not only offers a valuable aid in differential diagnosis of arthritic conditions but also affords an estimate of the activity of the disease and the progress of the patient.

Clinical Notes, Suggestions and New Instruments

THE DANGER OF DILATING URETHRAL STRICTURES WITH OIL: REPORT OF TWO CASES OF FATAL OIL EMBOLISM *

E. A. Patterson, M.D., Rochester, N. Y.

The introduction of oil under pressure into the urethra as a means of lubrication and dilation of a strictured area has been mentioned by a number of writers. The method as outlined by Thompson,[1] Cabot,[2] Hyman[3] and Crance[4] has been used by many urologists as an aid to the introduction of the filiform in the more difficult types of urethral strictures. In these cases the forcing of oil beyond the area of stricture often results in sufficient dilatation and lubrication to enable one to pass a filiform where this has previously been impossible. I have resorted to this method numerous times with a fair measure of success, and in certain cases in which the patient has been able to void I have been content to pass oil beyond the area of stricture on several successive days before making a second attempt at instrumentation.

It is my purpose in this article to call attention to the danger of forcing oil through such a strictured area and to present two cases of fatal oil embolism resulting from this procedure. I am indebted to Dr. W. W. Scott for aid in the preparation and presentation of this report.

REPORT OF CASES

Case 1.—*History.*—M. D., aged 70, July 20, 1929, complained of occasional attacks of unconsciousness, cough, pain in the chest, and chilly sensations. For eighteen years he had experienced "shaking spells," during which he had great difficulty in using his arms. These attacks occurred every three or four months; occasionally he lost consciousness. For five or six years there had been a mild intermittent cough, which was accompanied by pain in the chest. For three or four days prior to admission, he coughed up bloody sputum and experienced chilly sensations.

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[3] Osteo-arthritis is considered a synonym for degenerative or hypertrophic arthritis.

[4] Race, Joseph: Proc. Roy. Soc. Med. **22**:15 (March) 1929. Dawson, M. H.; Sia, R. H. P., and Boots, R. H.: Proc. Soc. Exper. Biol. & Med. **27**:657 (April) 1930. Rourke, M. Dorothy; and Ernstene, A. C.: J. Clin. Investigation **8**:545 (June) 1930. Dawson, M. H.; Sia, R. H. P., and Boots, R. H.: J. Lab. & Clin. Med. **15**:1065 (Aug.) 1930.

* From the Department of Surgery, University of Rochester School of Medicine.

[1] Thompson, Henry: Stricture of the Urethra and Urinary Fistulae, Philadelphia, Henry C. Lea, 1869.

[2] Cabot, Hugh: Modern Urology, Philadelphia, Lea & Febiger, 1924.

[3] Hyman, A.: Treatment of Urethral Stricture, Am. J. Surg. **39**:152 (June) 1925.

[4] Crance, A. M.: Approach to Acute Urethral Stricture, Introducing a Different Method of Lubrication, Am. J. Surg. **4**:423 (April) 1928.

The patient had contracted gonorrhea in early adult life. He had had acute urinary retention seven years before admission and stated that a perineal operation was performed at that time. Following the operation the perineal fistula did not close and an additional fistula developed in the scrotum.

Physical Examination.—The temperature was 38 C. (100.4 F.); pulse, 94, and respirations, 26. There was evidence of a chronic respiratory infection, general arteriosclerosis and senility. There were a perineal scar in the median line and two urinary fistulas; one of the latter was located in the scar and the other in the right side of the scrotum.

Examination of the blood showed hemoglobin to be 85 per cent; white blood cells, 28,000; the Wassermann reaction, negative. Nonprotein nitrogen was 50 mg. per hundred cubic centimeters.

Examination of the urine revealed albumin +, pus + and red blood cells +.

Treatment and Result.—The respiratory infection cleared with rest in bed. When an attempt was made to pass an instrument into the bladder, an obstruction beyond which a filiform would not pass was met in the bulbous urethra. However, it was possible to introduce a filiform into the bladder through each of the fistulas. Repeated attempts to pass a filiform by the urethra were unsuccessful and a fair amount of bleeding resulted. With the hope of dilating the stricture somewhat, liquid petrolatum was forced into the urethra by means of a Chetwood syringe.

Within two minutes the patient became dyspneic and cyanotic; he tried to struggle to a sitting posture, and it was noted that he could not use his left arm and leg. The reflexes were absent at the knee and elbow on this side. The patient collapsed and failed to respond to the usual supportive measures. Death occurred within fifteen minutes.

Postmortem Examination.—Necropsy showed old cerebral infarcts, encephalomalacia, urethral stricture, perineal and scrotal fistulas, chronic cystitis, right hydro-ureter, pulmonary edema, emphysema, renal adenomas, phleboliths in the spleen, and a chronic fibrous pleuritis.

The history of attacks of unconsciousness, together with the sudden onset of hemiplegia, led me to attribute death to cerebral hemorrhage, and no special examination for oil embolism was requested. This case is presented because of the clinical similarity to case 2 and because of its influence on the examination of the tissues in the latter.

Case 2.—*History.*—R. B., aged 61, May 25, 1930, complained of difficult urination. Fifteen years before admission he had noticed that he had a great deal of difficulty in voiding. A diagnosis of urethral stricture was made by his physician and the stricture was dilated. Following this he had no further difficulty until two or three years before admission, at which time he noticed that the urinary stream was becoming smaller. Three days before admission acute retention occurred, but within a short time he was able to void small amounts at frequent intervals. During the first two days of this attack, hematuria was present. On the day of admission his physician made an unsuccessful attempt at catheterization.

The patient had had a gonorrheal urethritis in early adult life.

Physical Examination.—The temperature was 37 C. (98.6 F.); pulse, 80, and respirations, 20. The bladder was percussed and palpated 4 cm. above the symphysis pubis. A markedly indurated area could be palpated along the course of the urethra in the region of the bulb.

Examination of the blood showed hemoglobin to be 95 per cent; white blood cells, 9,200; the Wassermann reaction, negative; nonprotein nitrogen, 100 mg. per hundred cubic centimeters.

Examination of the urine revealed: pus + + + +; red blood cells +.

Treatment and Result.—Repeated attempts to pass a filiform beyond the strictured area in the bulbous urethra were unsuccessful and were accompanied by bleeding. By means of a Chetwood syringe, liquid petrolatum was forced beyond the strictured area. Half an hour later the patient had a chill, the temperature rising to 39.5 C. (103.1 F.), the pulse to 135, and the respirations to 22. A blood culture taken at the time of the chill was later reported as normal. That night the temperature was 37.8 C. (100 F.), the pulse 93, and the respirations 21.

The following morning the patient stated that he was voiding much more freely. Liquid petrolatum was again passed through the strictured area, very little pressure being necessary, and was heard to enter the bladder. Immediately after the injection of oil the patient became dyspneic and cyanotic and was found to have developed a left hemiplegia. The reflexes could not be elicited at the knee or elbow on the left side. The temperature rose to 39.2 C. (102.5 F.), the pulse to 142, and the respirations to 27. Death occurred seven hours after the injection of the oil.

Postmortem Examination.—Since this accident was the second following the dilation of a stricture with oil, it was felt that the oil itself was responsible for the sudden death. Accordingly, a request was made for the examination of the tissues for oil embolism. Sudan III was used as the tissue stain.

Droplets of oil were demonstrated in the capillaries of both lungs and kidneys. The oil was diffusely distributed throughout the lungs and found in relatively large amounts. The quantity of oil in the kidneys was considerably less. In determining whether or not the oil seen in the sections of these tissues was in reality embolic, the points outlined by Lehman and Moore[5] were carefully considered. The material taking the stain was so great in amount and was distributed so widely throughout both lungs that it certainly was not the fat normally seen in the epithelial cells of the bronchi or in the peribronchial tissues. The droplets could be demonstrated beyond any doubt in the capillaries of both the lungs and the kidneys. An attempt was made to find oil droplets in the capillaries of the brain but this was unsuccessful.

Additional observations at the postmortem examination included stricture of the urethra, hypertrophy of the bladder, chronic cystitis, scarring and contracture of both kidneys, dependent edema and congestion of both lungs, and a left diaphragmatic hernia.

Although it was not possible to demonstrate oil embolism in the brain of this patient, no other cause for the sudden onset of hemiplegia could be shown. The clinical similarity of this case to case 1 is apparent and will be discussed further, but it may be noted here that in neither case was any cause found for the symptoms and signs of cerebral accident.

COMMENT

These two cases have several points in common: Both patients became dyspneic and cyanotic immediately after the oil injection, both developed a left hemiplegia, and in both cases death occurred. In fact, except that patient 2 lived seven hours longer after the initial reaction than did patient 1, the clinical courses were identical. There can be no doubt that the same pathologic process, namely, oil embolism, was responsible for death in the two cases.

The fact that oil embolism can be shown to be present in the kidneys of one of these patients proves that some oil passed through the lungs. The failure to show any other reason for the sudden onset of hemiplegia is presumptive evidence that cerebral oil embolism occurred, and the fact that oil injection caused hemiplegia without demonstrable cause in another patient makes the assumption of cerebral oil embolism inevitable.

That very rapid absorption takes place from the urethra has long been known, and practically every urologist has seen alarming reactions follow the introduction of anesthetizing substances into the urethra, recognizing the fact that these reactions occur more frequently in those cases in which there has been urethral bleeding. The work of Schönfeld and Müller[6] illustrates this point in that it demonstrates that absorption from the urethra is all the more rapid if the mucous membrane is irritated before the instillation of a drug. The numerous cases of blood stream infection after urethral instrumentation of all kinds and even on the occasion of first voiding after prostatectomy, as reported by Scott,[7] serve further to bring this out.

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[5] Lehman, E. P., and Moore, R. M.: Fat Embolism, Including Experimental Production Without Trauma, Arch. Surg. **14**: 621 (March) 1927.

[6] Schönfeld, W., and Müller, W. G.: Clinical and Experimental Observations on Resorption from Urethra and Bladder in Man, München. med. Wchnschr. **72**: 291 (Feb. 20) 1925; abstr. J. A. M. A. **84**: 1312 (April 25) 1925.

[7] Scott, W. W.: Blood Stream Infections in Urology, J. Urol. **21**: 527 (May) 1929.

I have not been able to find any reference to the possibility of oil entering the blood stream from the urethra except for a brief statement by Thompson[8] that the dilating of a stricture with oil "is not to be tried when there has been much bleeding or the tissues have been torn." It is interesting to note that on outlining the method nineteen years previously he issued no such warning, so it may be assumed that some accident occurred during this period; the nature of such an accident can only be surmised.

In the cases presented, 20 cc. of liquid petrolatum was used for each injection; of this amount a large proportion entered the bladder and a great deal was expelled from the urethra on withdrawal of the syringe. It is impossible to estimate the amount of oil entering the blood stream in each case, but it is felt that it was but a small fraction of 20 cc. It is known from the report of Fibiger[9] that the injection of 50 cc. of oil intravenously is sufficient to cause death in the human being, and Ribbert[10] has estimated the amount of fat in severe cases of fat embolism at from 15 to 20 cc. It would seem that the amount of oil, given intravenously, which is sufficient to cause death does not depend directly on the amount of oil given but depends on the amount of oil passing through the lungs and its distribution in relation to the vital centers. For this reason a very small fraction of the previously estimated fatal dosage may be sufficient to cause death.

In the past the use of oil under pressure in the urethra for dilation of strictures has been resorted to only after the customary attempts at instrumentation have failed. It seems much safer to discard the method entirely than to attempt to judge its safety in any given case by the amount of trauma to which that particular urethra has been subjected, since such a nicety of judgment is impossible and any attempt to attain it can lead only to eventual disaster.

CONCLUSION

Oil embolism in amounts sufficient to cause death may result from the introduction of oil under pressure into the urethra in cases of urethral stricture.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

SANDOPTAL.—Isobutylallyl barbituric acid.—Isobutylallyl malonylurea.—2,4,6,-trioxy-5-isobutylallyl pyrimidin.—$iso\text{-}C_4H_9\text{-}(C_3H_5)\,\underbrace{C\,CONH\,CONH\,CO}_{}$. Sandoptal differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced, one by an *iso*-butyl group and the other by an allyl group.

Actions and Uses.—The same as those of barbital and its therapeutically useful derivatives.

Dosage.—For mild insomnia, 0.2 Gm. (3 grains); for use in obstinate cases of insomnia, 0.4 to 0.8 Gm. (6 to 12 grains).

Manufactured by Sandoz Chemical Works, Basle, Switzerland (Sandoz Chemical Works, Inc., New York, N. Y., distributor). No U. S. patent. U. S. trademark applied for.

Tablets Sandoptal, 0.2 Gm.

Sandoptal occurs as a white, crystalline, odorless powder, with a slightly bitter taste; completely soluble in ethyl alcohol, acetone, chloroform, ether, ethyl acetate and glacial acetic acid; slightly soluble in cold water; sparingly soluble in boiling water and petroleum ether; insoluble in the paraffin hydrocarbons. A saturated aqueous solution is acid to litmus paper. It melts at 138-139 C. It is stable in air.

Place about 0.3 Gm. of sandoptal in a 25 cc. glass stoppered cylinder, add a mixture of 1 cc. normal sodium hydroxide solution and 5 cc. of water, shake the contents for one minute, filter through paper and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in 10 cc. of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in 5 cc. of ammonia water. Boil about 0.5 Gm. of sandoptal with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of strongly alkaline vapors. Place about 1 Gm. of sandoptal in a 25 cc. glass stoppered cylinder, add 10 cc. of water, shake for one minute, filter through paper and divide into two portions; to one portion add 0.5 cc. of a saturated bromine water; an immediate discoloration occurs; to the other portion add 0.1 cc. of tenth-normal potassium permanganate solution: a yellow color appears immediately.

Dissolve about 0.1 Gm. of sandoptal in 1 cc. of sulphuric acid: the solution is colorless (*readily carbonizable substances*). Boil about 0.5 Gm. of sandoptal with 50 cc. of water for two minutes: no odor develops; cool and filter: separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 1 Gm. of sandoptal, accurately weighed: the residue does not exceed 0.1 per cent. Dissolve about 0.5 Gm. of sandoptal, accurately weighed, in 25 cc. of previously neutralized alcohol; dilute with an equal volume of water and titrate with tenth-normal sodium hydroxide solution, using thymol-phthalein as an indicator: the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 101.5 per cent of *iso*butylallyl barbituric acid.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1931, p. 383).

E. R. Squibb & Sons, New York.

Diphtheria Toxin for the Schick Test, Ready to Use without Dilution-Squibb.—A diphtheria toxin made by growing diphtheria bacilli in broth, aging, and diluting with peptone solution according to W. E. Bunney (*J. Immunol.* **20:** 71, 1931). The product is ready for use, no diluent being required. The diluted toxin is of such strength that 0.1 cc. (one dose) given intracutaneously constitutes one-fiftieth minimum lethal dose for a guinea-pig of 250 Gm. weight. It is marketed in packages of 1 cc. containing sufficient for ten tests and in packages of 10 cc. containing sufficient for 100 tests.

REPORTS OF THE COUNCIL

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

SOLUTION NORMET NOT ACCEPTABLE FOR N. N. R.

Solution Normet Medical and Solution Normet Surgical are marketed in the United States by the High Chemical Co., Philadelphia. According to the advertising circular the "Medical" differs from the "Surgical" solution in that it contains less manganese. No quantitative statement of composition is given in the available advertising or on the trade package examined. However, in an article, "Le traitement des hemorrhagies graves et des états de shock chez l'homme par le sérum citrate de Normet" (*Bull. et mém. Soc. nat. de chirurgie* **55:** 848, 1929) M. Normet gives the formula of the "serum" used as follows (in translation): sodium citrate, 22 Gm.; calcium citrate, 9.5 Gm.; magnesium citrate, 4.5 Gm.; iron and ammonium citrate, 1 Gm.; manganese citrate, 0.2 Gm., dissolved in 1,000 cc. of distilled water. The label on the trade package of Solution Normet Surgical directs that the contents of one ampule (20 cc.) be mixed with 1 quart of 0.7 per cent sodium chloride solution for injection. From this it follows that the solution to be injected contains only about 1 part of manganese citrate in 250,000; 1 part of sodium citrate in about 2,300; 1 part of calcium citrate in about 5,200; 1 part of magnesium citrate in about 11,000, and 1 part of iron and ammonium citrate in 50,000. Solution Normet Medical would, according to the advertising, contain less manganese citrate.

The available advertising consists of a folder and several form letters, the unctuous, go-getting tone of which is an affront to the intelligence of any but a gullible, non-reading physician who is looking for a miraculous shortcut to "results." The folder hails the solution as "A New Triumph," proclaiming its usefulness in a host of conditions: myocarditis, collapse, varices, hemorrhage, hemoptysis, hematemesis, pyocarditis, bronchopneumonia, influenza, measles, smallpox, anemia (all forms), hemophilia, purpura hemorrhagica, grave hemorrhage during the placental period, infections; for prevention of metritis, phlebitis and puerperal infections and to accelerate uterine involution, not to mention placenta accreta and increta, which is referred to as though it constituted the great triumph justifying the characterization. Another great "triumph" was in a case of "gastorrhagia"; one each in articular rheumatism, exhaust poisoning, fibroid toxicity and acute leukemia. No name is given of the physician or surgeon who reported any of these cases, though the manufacturers offer to send the name on request.

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[8] Thompson, Henry: Diseases of the Urinary Organs, London, J. and A. Churchill, 1888.

[9] Fibiger, J., cited by Gröndahl: Deutsche Ztschr. f. Chir **111:** 56, 1911.

[10] Ribbert, H.: Zur Fettembolie, Deutsch med. Wchnschr. **26:** 419, 1900.

Physicians and surgeons are delighted to report in the reputable medical and surgical journals their successes in treating extraordinarily difficult and dangerous cases; but one who has recently had occasion to examine a very considerable volume of medical literature did not encounter a single report by a physician or surgeon of a critical study of Normet's Solution. It is true that Northrup reported in the *Hahnemannian Monthly* (**66**:330 [May 31] 1931) the use of Normet's Solution in five cases, of which one proved fatal, but Northrup's report cannot be called a critical study. Northrup also presented a film (presumably supplied by the manufacturers, since they offer to show one closely similar) which shows a dog deprived of 80 per cent of its blood (or 90 per cent according to Northrup) which received an injection of Normet's Solution and then behaved much like a normal dog.

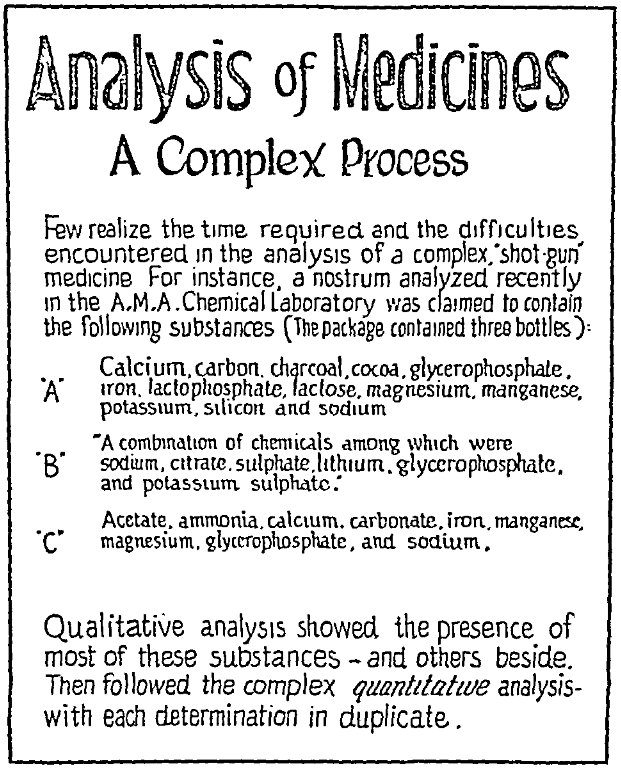
It is difficult for one who has seen nearly similar experiments to believe that the dog had been deprived of 90 per cent or even 80 per cent of its blood (and no statement is made concerning the actual amount of blood removed), for such dogs show an extreme degree of depression after saline infusions.

It is well known that sodium citrate injected intravenously shortens the coagulation time of the blood as observed by Richard Weil in 1915; but it is not effective by subcutaneous injection, though the manufacturers of Normet's Solution recommend the subcutaneous injection for slowly exuding postoperative hemorrhages.

According to "Useful Drugs" (ed. 8, 1930, p. 50) the intravenous injection of calcium salts depresses the nervous system; but it seems probable that an ordinary dose of Normet's Solution does not markedly influence the nervous system through the action of the calcium. The amounts of the citrates of magnesium, manganese and of iron and ammonium citrate are too small to have any appreciable influence. The only constituents of Normet's Solution that are mentioned in "Useful Drugs" are magnesium citrate, which is a laxative in doses of 350 cc. of the solution, representing about 5 Gm. of the oxide, and iron and ammonium citrate, of which the oral dose is about 4 grains, and which, like other preparations of iron, is used for the regeneration of the blood in anemia; but there is no such rapid action as it is claimed that Normet's Solution induces.

The available literature indicates that none of the constituents of Normet's Solution, nor all of them combined, are capable of exerting any extraordinary restorative value in any of the conditions enumerated; but it is true that the infusion of physiologic solution of sodium chloride alone often causes marked improvement after the loss of blood, though there is no striking difference between the death rate in dogs that have received physiologic solution of sodium chloride and those that have not, following severe hemorrhage.

The Council declared Normet's Solution unacceptable for New and Nonofficial Remedies because it is an unscientific mixture marketed with unwarranted therapeutic claims.



Analysis of Medicines

A Complex Process

Few realize the time required and the difficulties encountered in the analysis of a complex "shot-gun" medicine For instance, a nostrum analyzed recently in the A.M.A. Chemical Laboratory was claimed to contain the following substances (The package contained three bottles):

"A" Calcium, carbon, charcoal, cocoa, glycerophosphate, iron, lactophosphate, lactose, magnesium, manganese, potassium, silicon and sodium

"B" "A combination of chemicals among which were sodium, citrate, sulphate, lithium, glycerophosphate, and potassium sulphate."

"C" Acetate, ammonia, calcium, carbonate, iron, manganese, magnesium, glycerophosphate, and sodium.

Qualitative analysis showed the presence of most of these substances – and others beside. Then followed the complex *quantitative* analysis – with each determination in duplicate.

A reduced reproduction of a poster that has been shown in the A. M. A. Chemical Laboratory exhibits. This poster shows how the work of the Laboratory may be very complicated.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

SIMILAC

(A Food for Infants — Derived from Modified Fresh Skim Cow's Milk [the Casein of Which is Rendered Soluble]; with the Addition of Milk Sugar, Salts, Milk-Fat, Olive Oil, Coconut Oil and Cod Liver Oil)

Manufacturer.—M & R Dietetic Laboratories, Inc., Columbus, Ohio.

Description.—A spray dried reconstructed diet for infants deprived of breast milk; containing sodium, potassium, and calcium caseinates, lactalbumin, milk sugar, salts, and animal and vegetable fats (butter fat, olive oil, coconut oil, cod liver oil).

Manufacture.—The milk used in the preparation of Similac is collected in accordance with the provisions of the sanitary code of the Columbus Board of Health. The milk fulfilling these requirements is skimmed by centrifugal method. The skimmed milk is treated with phosphoric acid or a soluble phosphate to precipitate calcium milk-salts. The liquid is brought to the desired degree of alkalinity by the addition of sodium hydroxide. The precipitate is removed by centrifugating, subsequent to which hydrochloric acid is added to neutralize the excess alkalinity. Lactose, milk-fat, cod liver oil, olive oil and coconut oil are added and the mixture is homogenized by forcing under high pressure through small apertures. The homogenized mixture is pasteurized and concentrated under reduced pressure. The concentrated liquid is spray dried by forcing under high pressure into a drying chamber containing hot air currents. The resulting dried powder settles on the floor of the chamber, is removed to packing machines, and is automatically packed in hermetically sealed tins in an atmosphere of nitrogen.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	3.0
Ash	3.2
Fat (Mojonnier method)	27.1
Protein (N × 6.38)	12.5
Lactose (by difference)	54.4
(Reliquefied—1 oz. Similac to 7.5 oz. water or 1 tablespoon of Similac to 2 oz. water.)	
Ash	0.4
Fat	3.4
Protein (N × 6.38)	1.5
Lactose	6.8
p_H	6.8

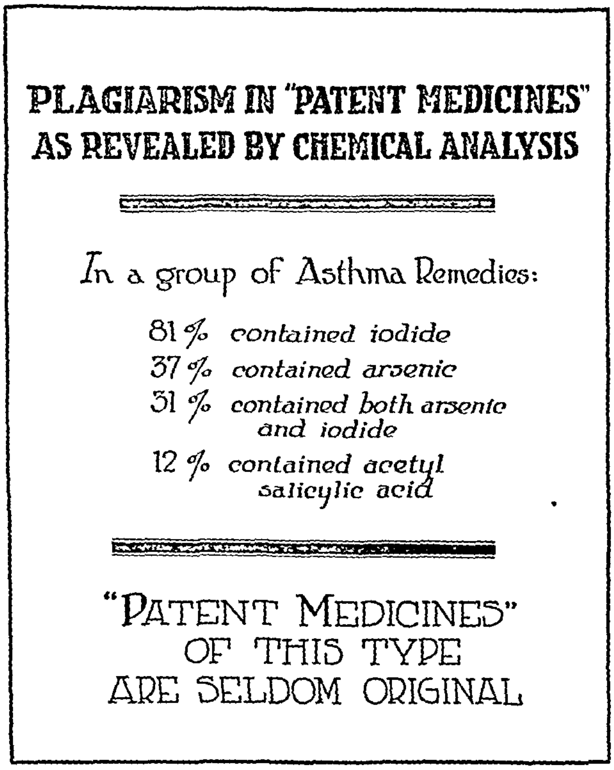
Calories.—

5.12 per gram
145.4 per ounce

Micro-Organisms.—Each run of Similac is subjected to a routine bacteriologic examination. The company guarantees absence of green and brown colony forming bacteria and hemolytic organisms.

Claims of Manufacturer.—Similac is designed as a food for infants deprived of breast milk and may be fed either as a complement or as a supplement to breast milk or as a diet where breast milk is entirely absent. The normal dilution of Similac is 1 tablespoonful or measure of Similac powder to 2 ounces of water. It is not necessary to feed in this dilution only. Similac may be fed either in a more concentrated or in a diluted mixture according to the requirements of the individual infant. Accessory foods, such as orange juice, tomato juice and cod liver oil, are recommended in conjunction with the feeding of Similac.

The modification of the salts of skimmed milk used in the preparation and manufacture of Similac produces a change in the casein of milk which results in the Similac coagulating in a soft, fine, flocculent curd similar to the curd produced when breast milk comes in contact with the gastric juices, thereby enabling the utilization of all food elements contained in Similac.



PLAGIARISM IN "PATENT MEDICINES" AS REVEALED BY CHEMICAL ANALYSIS

In a group of Asthma Remedies:

81% contained iodide
37% contained arsenic
31% contained both arsenic and iodide
12% contained acetyl salicylic acid

"PATENT MEDICINES" OF THIS TYPE ARE SELDOM ORIGINAL

A reduced reproduction of a poster that has been shown in the A. M. A. Chemical Laboratory exhibits at the Annual Sessions of the American Medical Association for the last several years. In contradistinction to the poster on the opposite page, this shows how the background acquired by the Laboratory in its years of investigating patent and proprietary remedies makes the analyses of certain preparations relatively easy.

SWIFT'S PURE TOMATO JUICE

Distributor.—Swift and Company, Packers, Chicago, Ill.

Description.—A pasteurized tomato juice, seasoned with salt.

Manufacture.—The tomatoes as received are washed in a continuous stream of fresh water, from which they are conveyed by rotating paddles to a spray washer, following which they pass through a second stream of water to conveyor belts for sorting and trimming. Only thoroughly matured sound red ripe tomatoes are selected for the tomato juice.

The juice is expressed from the preheated, cleaned tomatoes in an atmosphere of water vapor in a continuous press. Practically no air is incorporated in the juice in this operation. The expressed juice passes through a screen, is brought to a definite standard of consistency by removal of the suspended solids, and is pumped to the filling machines under conditions that exclude air in an atmosphere of water vapor. The cans are filled also by a procedure that avoids admixture with air and in a surrounding of water vapor. A definite quantity of table salt is automatically added to each can. The cans are sealed and pasteurized at a definite temperature for a sufficient time to insure the keeping qualities.

Laboratory supervision is maintained to insure the use of tomatoes of a proper grade, color and flavor, to control the viscosity of the final juice, and to supervise the processing.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	93.3
Total solids	6.7
Insoluble solids	0.5
Ash	1.2
Salt (sodium chloride)	0.7
Fat (ether extract)	0.0
Protein (N × 6.25)	1.1
Titratable acidity, as citric acid	0.5
Reducing sugars before inversion, as dextrose	3.8
Reducing sugars after inversion, as dextrose	3.7
Sucrose	0.0
Crude fiber	0.2
Viscosity (standard 29-31)	30 seconds

Calories.— 0.20 per gram
5.7 per ounce

Vitamins.—The selection of high quality, matured, vine ripened tomatoes assures the vitamin content of the material used for the preparation of the juice. The construction and operation of the press and other equipment, the replacement of air with steam or water vapor in the atmosphere surrounding the tomatoes and juice during the preparation of the product and the avoidance of mixture of air with the juice at all stages of the process assure maximum retention of the vitamin content of the original juice as is obtainable by modern commercial canning methods.

Claims of Manufacturer.—Swift's Pure Tomato Juice is prepared from red ripe tomatoes and is seasoned with salt. This tomato juice is adaptable as an infant food. It is a good source of mineral salts and of vitamins A, B and C. Like orange juice, Swift's Pure Tomato Juice is a protective food for babies against scurvy. The final products of metabolism in the body are alkaline.

ROTH'S BAMBY BREAD

Manufacturer.—The A. Roth Baking Company, Inc., Newport, Ky.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 70 per cent patent flour of Northwest wheat, water, sucrose, yeast, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, and a bleaching agent of soya bean and corn flour are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, sweetened condensed skim milk, shortening and a partially hydrolyzed starch to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

Moisture (entire loaf)	33.0
Ash	1.0
Fat (direct ether extraction method)	1.5
Protein (N × 6.25)	9.1
Crude fiber	0.4
Carbohydrates (by difference) other than crude fiber	55.0

Calories.— 2.70 per gram
76.7 per ounce

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, OCTOBER 17, 1931

DISTRIBUTION OF BROMIDES IN THE BODY

Bromine has remained one of the most interesting and puzzling chemical elements in medicine, especially as regards the more or less specific central actions of bromide ions. The efficiency of sodium or potassium bromide in epilepsy has been sometimes regarded as a matter of saturation of the specific tissue with the bromide, a phenomenon which would seem to imply a direct and selective action on the central nervous system. Recently bromides have been tried as a test for the permeability of the so-called cerebrospinal barrier; estimations of the bromide content in cerebrospinal fluid have acquired a certain popularity. This test also implies an efficient cerebral penetration of bromides. If this were true, a correlation of cause and effect would be suggested. However, satisfactory evidence of a possible selective distribution in the central nervous system has been lacking. It would seem that the proper application of quantitative methods should give the answer to postulated cerebral selectivity. Now, such estimations have been provided by Toxopeus[1] of the Utrecht Pharmacologic Institute, who found a peculiar distribution of bromides in the body.

Toxopeus analyzed the important organs of seven dogs which had been fed sodium bromide. He administered moderately high doses, the equivalent of about 100 to 400 Gm. for a 70 Kg. adult, during periods of days. Most of the sodium bromide was found in the muscles, which contained about 37.3 per cent of sodium bromide as the average amount for the seven animals; next in order was the skin, which contained 16 per cent, and then came the blood with 9.3 per cent of sodium bromide. The brain stood eighth or ninth in order with from about 0.2 to 0.4 per cent of sodium bromide, and the bones, lungs, heart, liver and kidneys each contained more than the brain. The concentrations of sodium bromide in the various organs followed the same order as the distribution: for instance, the blood contained from about 2.5 to 4.5, and the muscles contained from about 1.5 to 5 times the concentration of the sodium bromide in the brain. Comparisons with chloride distribution, after administration of equivalent amounts of sodium chloride, showed that the order of the muscles and skin was reversed; that is, the skin came first with 35 per cent of total chlorides in terms of sodium chloride, then the muscles with 18.3 per cent, and the blood with 12.4 per cent. The results on chloride distribution confirmed the older results of Wahlgren and of Padtberg.[2] Accordingly, Toxopeus points out that the distribution of bromide as sodium bromide is different from that of normal as well as administered chloride as sodium chloride. The results of Toxopeus are distinguished by greater accuracy, owing to a better method of quantitative estimation, than those of previous authors. Although the individual variations were considerable and the quantitative method for the estimation of bromide was tedious and difficult, the consistency of the results of Toxopeus was good enough to indicate definite tendencies for the bromide, and real differences between the bromide and the chloride. However, no clear understanding of these tendencies and differences, and of the individual variations, could be obtained when the distribution of the two halides was studied on dogs under different experimental conditions. For instance, the mean values for bromide after thyroidectomy, thyroid feeding and injections of pituitary solution were about the same, but the results with chloride were more uniform than with bromide.

In view of the predominant seat of action of the halide, it is surprising to find the brain so low in the order of selectivity for bromides. This paradox may disturb some older teaching of the actions and uses of bromides but is not altogether peculiar or exclusive. There are other drugs whose actions may be out of proportion to, or outlast, a selective distribution to the dominant organ of action, notably digitalis, thyroxine and the barbitals. Perhaps the physical-chemical binding of drugs to elective organs or functions has been overemphasized. This overemphasis may be more easily urged in the case of poorly understood physiologic functions, such as sleep, which bromides have the power to promote. The newer suggestions for the mechanism of action of hypnotics, as of bromides and barbitals, concern themselves with stimulation of inhibition, a physiologic mechanism suggested also for sleep but which would not necessarily be conditioned on a high cerebral concentration or selectivity of the drugs. Quite the contrary, the effective doses of many hypnotic agents are so small as to deny the importance of special organ concentration and selection. There is no reason to believe that pathologic tissues, as in epilepsy, would have a greater selectivity for hypnotic drugs. However, there might be a greater sensitivity of such pathologic function to hypnotics. Although the mechanism of the hypnotic and central actions of bromide remains unsolved, it appears certain that a special selectivity for the bromide ion (Br^-) in the nervous system does not exist and cannot be used as explanatory of its special action.

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[1] Toxopeus, M. A. B.: Arch. f. exper. Path. u. Pharmakol. **149**: 263, **154**: 247, 1930.

[2] Wahlgren: Arch. f. exper. Path. u. Pharmakol. **61**: 97, 1909. Padtberg: Ibid. **63**: 60, 1910.

FAT EMBOLISM AND TRAUMA

A diagnosis of fat embolism is only occasionally made during life. Severe fat embolism, however, gives rise to two distinct clinical pictures, which are associated with definite pathologic lesions. The pulmonary type is characterized by a marked obstruction of the arterioles and capillaries of the lungs. In the cerebral type, the fat emboli pass through the pulmonary capillaries and cause lesions in the brain, heart and kidneys. Patients with the pulmonary type of fat embolism have symptoms of asphyxia before death; those with the cerebral type show involvement of the central nervous system. Vance[1] has reported a study of 246 necropsies made among the routine examinations in the office of the chief medical examiner of New York City, with a view to determining the relation of trauma to fat embolism. Sections of the lungs and kidneys made from each necropsy were examined under the microscope for fat emboli and a diagnosis was made only when it was determined that the globule of fat blocked the lumen of the arteriole or capillary. In this series, 164 cases which came to necropsy were associated with physical trauma; among them were 3 cases of fat embolism which were fatal, 11 which were severe and 34 cases which were moderate. There were 62 cases associated with trauma which gave negative results.

The type of trauma had an important influence on the production of fat emboli. Fractures of the skeleton gave a greater incidence and a more severe grade of fat embolism than did other forms of trauma. Vance reports that in fractures of the bones of the lower extremity from 40 to 60 cc. of liquid fat was found mixed with blood around the ends of the broken bones. The quantity of extravasation was usually much less when the patient lived more than a few minutes following the violence that produced the fracture. A study of fifty-nine necropsies showing fracture of the lower extremity suggested that the greatest amount of fat enters the circulation the first seven days after the fracture.

Fat embolism develops in comparatively few cases of fracture. In the series of fifty-nine cases, about 80 per cent were negative for fat emboli or showed at most a moderate number. Only six cases of fat embolism of at least moderate grade followed injury other than fracture. Two of these were the result of orthopedic manipulations, and one was associated with a contusion of the abdominal wall followed by a laparotomy. In the entire series of necropsies, among eighty-two cases not associated with physical trauma seven were positive for fat embolism of only a slight degree in the lungs. The kidneys in all of the seven cases were normal. Six of the seven patients died as a result of natural causes. As some cases of nontraumatic death may show a slight grade of fat embolism, such conditions found at necropsy cannot be considered a reliable indication that death was due to trauma. On the other hand, Vance believes that severe or moderate fat embolism is the result of injury and, when demonstrated at necropsy, is sufficient proof that the trauma occurred before death. Several cases of pulmonary fat embolism severe enough to be clinically important were found in this necropsy material. It was evident in a few of them that fat embolism was the cause of death and in others that it was a contributory cause.

Pulmonary fat embolism, according to Groendahl,[2] is liable to develop in patients whose heart muscle is weak. In one clinical variety there is a violent onset with dyspnea, cyanosis, and edema of the lungs, which occurs suddenly a few hours after the injury. Death in these cases is rapid. In a second clinical type there is an interval of several hours or days between the injury and the onset of symptoms. A persistent cough usually appears first, then blood-tinged sputum, dyspnea, cyanosis and signs of edema. Respiration toward the end passes gradually into the Cheyne-Stokes type and coma develops. In the pulmonary type, fat emboli can be demonstrated in the arterioles and capillaries of the lungs, the oval globules of fat blocking the lumen. During life, when large spherical cells containing fat granules are found in the sputum they are regarded as an important diagnostic sign.

Fat emboli which pass in large numbers from the pulmonary circulation into the arterial circulation may be distributed to all organs of the body, especially to the brain, the heart and the kidneys. The most prominent symptoms are caused by fat lodging in the brain. In such cases Vance divides the progress of the condition into three stages: first a period of from forty-eight to sixty hours between the trauma and the appearance of the symptoms; next the soporific stage, ushered in by dyspnea, restlessness, precardial pain and a higher pulse rate. In this stage the fat probably is passing through the capillaries of the lungs into the arterial blood, and the symptoms are due to difficulties experienced by the right side of the heart during this process. Cerebral symptoms then arise; the patient sinks into a stupor and gradually passes into the third stage, that of coma. The cerebral type of fat embolism may be overlooked if an injury of the head is present.

This study provides further evidence that one of the true etiologic factors in fat embolism is trauma to the adipose tissue frequently produced by fractures of bones. Alleged etiologic factors, such as burns, poisons, lipemic conditions due to natural causes, and postmortem processes, did not prove to be important.

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[1] Vance, B. M.: The Significance of Fat Embolism, Arch. Surg. **23**: 426 (Sept.) 1931.

[2] Groendahl, N. B.: Deutsche Ztschr. f. Chir. **111**: 56, 1911.

THE FUEL OF MUSCULAR ACTIVITY

What makes the human machine perform? This question, involving the fundamental problem of the source of the energy in muscular work, has been asked and answered many times in the history of modern physiology. To one who does not appreciate the difficulties of the investigation of this subject it may seem strange that the fuel at the expense of which daily muscular tasks are accomplished cannot be spoken of with complete conviction. Instead of coal and wood, gas and petroleum, the animal organism is limited to the proximate principles—the calory-yielding foodstuffs. We have repeatedly referred to the hypothesis, so vigorously championed of late by the English physiologist and Nobel laureate A. V. Hill, that carbohydrate is always the immediate source of energy in muscular activity. There are unquestionably occasions when the readily available bodily supply of glycogen and dextrose cannot suffice for the task to be accomplished; yet the muscles do not fail to work. May it be assumed, as some investigators do, that fat can serve directly to yield the requisite calories; or must the conclusion be that in such an emergency the fat must first be converted into sugar before it can be used to stoke the human engine?

In an exhaustive review of these questions, T. M. Carpenter[1] of the Boston Nutrition Laboratory of the Carnegie Institution of Washington, himself an experienced investigator of muscular energy, has ventured the following explanation: It would seem, he writes, as though with extremely light work the available metabolites which result from the mixture of nutrients at rest were first used. These may be conceived of as small molecules from carbohydrate, protein and fat. When the metabolites from fat which are easily oxidized are disposed of, the carbohydrate would be drawn on, because this may be the more easily metabolized. Subsequently the available type of carbohydrate becomes diminished and then there is a diminishing amount of carbohydrate metabolized with an increasing amount of fat. It seems, he adds, that some sort of combination, such as the foregoing, may explain the lack of change in the respiratory quotient when the work is very moderate, the increasing carbohydrate utilized when the work is increased, and drawing on fat when the work is continued.

Even more recently, Stewart, Gaddie and Dunlop[2] of the University of Edinburgh have studied the problem by the added device of following the fat content of the blood during muscular work in man. Their observations lead them to the conclusion that protein is not used for work, and that carbohydrate continues to be used throughout vigorous exercise, fat being used in increasing amounts under such conditions. Their data do not suggest any conversion of fat to carbohydrate. How long such conclusions will continue to be tenable remains to be seen.

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[1] Carpenter, T. M.: The Fuel of Muscular Activity of Man, J. Nutrition **4**: 281 (July) 1931.

[2] Stewart, C. P.; Gaddie, R., and Dunlop, D. M.: Fat Metabolism in Muscular Exercise, Biochem. J. **25**: 733, 1931.

Current Comment

WELCOME TO ALABAMA

Beginning with July, 1931, the Medical Association of the State of Alabama and the state board of health have cooperated in the issuing of a journal of the two organizations, this periodical to be owned and published jointly each month by these two agents. The periodical makes a right start by becoming a member of the Cooperative Medical Advertising Bureau, in which practically all of the state medical journals are associated. Such periodicals as are associated in the bureau limit their advertising of drugs to products passed on and accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The first issue of the *Journal of the Medical Association of the State of Alabama and of the State Board of Health* includes the president's address; two articles on scientific subjects; editorials; proceedings of the association, since the magazine replaces the previously published transactions; also a department of public health, of county society news, book abstracts and reviews. It is a well organized publication, apparently carefully edited, and it deserves therefore a special welcome as a useful addition to the group of state medical publications.

AUSTRALIAN POLIOMYELITIS

The recognized difficulties in practical control and specific therapy of poliomyelitis are greatly increased by the alleged demonstration by Burnet and Macnamara[1] of Melbourne, Australia, that there are at least two immunologically distinct types of this infection. Pooled convalescent serum from one community was found by them to be equally viricidal for the two types, while from a second community only one type of the virus was neutralized. The new virus was originally isolated from a child dying in the Children's Hospital, Melbourne. This virus produced typical poliomyelitis on intracerebral inoculation into monkeys, the few monkeys that recovered being almost entirely immune to this strain and their serums neutralizing the strain in vitro. The monkeys, however, showed practically no immunity to American poliomyelitis, nor would their serums neutralize the American virus. As a control test of this apparent difference in specificity they report that an almost absolute convalescent immunity in monkeys to the American strain is accompanied by no demonstrable immunity to the Melbourne virus.

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[1] Burnet, F. M., and Macnamara, J.: Brit. J. Exper. Path. **12**: 57 (April) 1931.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 10:30 a. m. on Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 19. Flies.
October 24. Louis Pasteur, a Pioneer of Medicine.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday and Saturday from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

October 19. Carbuncles.
October 21. Health and Music.
October 24. Be Sensible.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Personal.—Dr. Albert F. De Groat, Kansas City, Mo., has been appointed assistant professor of pathology at the University of Arkansas School of Medicine, Little Rock.——Dr. Ray M. Balyeat, Oklahoma City, among others, gave an illustrated address on "Etiology of Allergic Diseases" before the Tri-County Medical Society, October 1, in Camden.

CALIFORNIA

Section on Medical Problems and Public Relations.—The board of directors of the San Francisco County Medical Society recently adopted a resolution which provided for the creation of a section on medical problems and public relations. Only those members who enroll themselves as members of the section and who attend 60 per cent of all meetings of the section shall be entitled to vote. The officers of the section shall be a chairman, a vice chairman and a secretary. The organization meeting and election of officers of the new section will be held in the society's home, October 21.

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended October 3, indicate that the highest mortality rate (16) appears for San Diego and the rate for the group of cities as a whole, 9.6. The death rate for San Diego for the corresponding period last year was 12.2, and for the group of cities, 10. The annual rate for eighty-two cities was 12 for the forty weeks of 1931 and the same rate appears for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

COLORADO

Society News.—The Medical Society of the City and County of Denver was addressed, September 22, by Drs. John Mc. Foster, Jr., on "Treatment of Empyema"; Roderick J. McDonald, Jr., "Nephrosis," and Bertram B. Jaffa, "The Status of Fumigation in Denver."——The Boulder County Medical Society was addressed, October 8, by Drs. William C. Johnson and William Bernard Yegge, both of Denver, on "Etiology and Pathology of Gastric Ulcer" and "Diagnosis and Treatment of Gastric Ulcer," respectively.

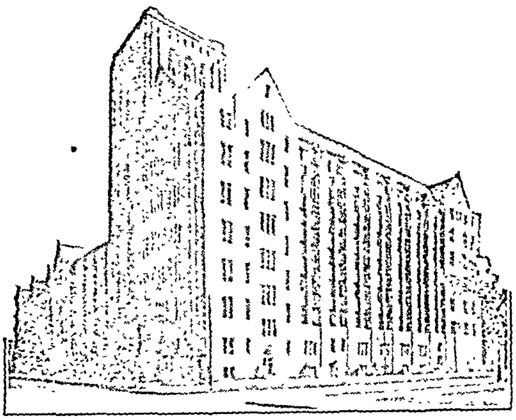
ILLINOIS

Tri-County Society Organized.—A resolution was adopted at a meeting and dinner of the Marion County Medical Society, September 24, in Centralia, which provided for the formation of a tri-county medical society to include the counties of Washington, Clinton and Marion. The president of the society was instructed to appoint committees to perfect the organization. The guest speakers included Drs. Jonas Curtis Lyter and Frank J. Tainter, St. Louis, whose subjects were "Bronchial Asthma" and "Pain in the Anatomical Region of the Fifth Nerve," respectively.

Chicago

Society News.—The Chicago Pathological Society was addressed, October 12, among others, by Drs. P. Arthur Delaney on "Dual Carcinomas, Primary in the Lung and in the Prostate," and Graham A. Kernwein, "Combined Congenital Exstrophy of the Female Urinary Bladder and Cloaca."——A symposium on the pathologic gallbladder featured the meeting of the Chicago Roentgen Society, October 14. The speakers were Drs. Milton M. Portis, Peter S. Clark and David Beilin.——Dr. Leopold Benno Bernheimer, among others, will address the Chicago Society of Allergy, October 19, on "Allergic Nasal Disease."——The Chicago Ophthalmological Society will be addressed, October 19, among others, by Dr. Vilray P. Blair, St. Louis, on "Blepharoplastic and Ptosis Operative Procedures."——Dr. John A. Bigler, Highland Park, Ill., among others, will address the Chicago Pediatric Society, October 20, on "Effect of Tonsillectomy and Adenoidectomy on the Schick Reaction."

Laboratory Building Opened.—The new laboratory building of the University of Illinois College of Medicine, which was opened with the beginning of the fall term, October 5, was erected at a cost of $1,500,000. The first floor is given over to the administrative offices and office of the dean; the second, to physiology; the third, to physiologic chemistry; the fourth, to pharmacology, and the fifth, sixth and seventh to anatomy. Other buildings in the proposed medical center at Illinois, which have been completed, are the general hospital and outpatient department, research laboratory and library building, orthopedic and psychiatric institutes, institute for juvenile research, nurses' home and power plant. The building planned for the college of dentistry will also house the departments of bacteriology and pathology. The state department of public welfare is cooperating with the university in this building program.



INDIANA

Outbreak of Food Poisoning at Purdue.—Bacterium enteritidis, one of the paratyphoid group of organisms, was given as the cause of the outbreak of food poisoning at Purdue University, October 4, in which 119 students became ill from poisoning following their supper. The bacteriologists found the germ in the chicken salad. It was said the growth of the organism in the chicken was due to insufficient refrigeration. The system of refrigeration was recently changed at the university, and it was believed that the food was left too long without ice.

Society News.—Dr. Franklin S. Crockett, La Fayette, among others, addressed the thirty-seventh annual conference of Indiana State and County Health Officers in Indianapolis, September 22-23, on "Organized Medicine and Public Health Agencies." Dr. Thurman B. Rice, Indianapolis, announced at this meeting that the Indiana University School of Medicine plans to give a course for the training of health officers next summer, provided the enrolment is sufficient.——The Clinton County Medical Society held a joint meeting with the Clinton County Dental Society and the Clinton County Bar Association at Frankfort, October 1, with Mr. Albert Stump, Indianapolis, as the speaker on legal questions concerning the three professions.——Drs. Robert M. Moore, Indianapolis, and L.

Ray Ellars, Louisville, Ky., addressed the Second District Medical Society, Linton, September 17, on heart disease and surgical conditions in the abdomen, respectively.

IOWA

Dr. von Graff Comes to University of Iowa.—Dr. Erwin von Graff has been appointed professor of obstetrics and gynecology at the State University of Iowa College of Medicine, Iowa City. Dr. von Graff is a graduate of the University of Graz and took graduate work at Graz, Innsbruck and Vienna. He has been connected with the University of Vienna, Austria, for the last twenty years.

LOUISIANA

Society News.—The Avoyelles Parish Medical Society held its quarterly meeting and "annual ladies' meet" at Marksville, July 22; following the dinner, there was a theater party. Dr. Sidney C. Barrow, Shreveport, addressed the physicians on "Medical Organization and Medical Economics."——Dr. William L. Bendel, Monroe, among others, addressed the Ouachita Parish Medical Society, October 1, on "Intravenous Urography."——The Seventh District Medical Association was addressed, September 17, among others, by Drs. Edward William Alton Ochsner, New Orleans, and Edward S. Peterman, Crowley, on injection treatment of varicose veins and management of toxic goiter, respectively.

Appointments at Louisiana University.—The following appointments to the faculty of Louisiana State University School of Medicine were recently announced:

Dr. John Signorelli, professor of pediatrics.
Dr. Ludo von Meysenbug, professor of clinical pediatrics.
Dr. George S. Bel, honorary professor of medicine.
Dr. Clarence P. May, assistant professor of neuropsychiatry.
Howard Horace Beard, Ph.D., professor of physiologic chemistry.

Dr. Bel withdrew from active teaching in Tulane University of Louisiana School of Medicine in 1924, after having served more than thirty years on the faculty. All the appointees are residents of New Orleans except Professor Beard, who comes from Western Reserve University School of Medicine, Cleveland. The state university school of medicine was organized this year (The Journal, March 14, p. 868).

MARYLAND

Lectures for Social Workers.—A series of medical lectures for social workers has been arranged under the auspices of the American Association of Social Workers and the American Association of Hospital Workers; they will be given at the Medical and Chirurgical Faculty Building, Baltimore. Drs. Henry M. Thomas, Jr., will speak, October 19 and 23, on "Bright's Disease, Diabetes, Pneumonia" and "Glands of Internal Secretion"; Joseph Earle Moore, October 26, "Syphilis"; Lewellys F. Barker, November 2, "Nervous Diseases—Locomotor Ataxia, Paralysis Agitans, Psychoneurotic States"; Victor F. Cullen, November 10, "Tuberculosis"; Alexander J. Schaffer, November 16, "Diseases of Children—Infantile Paralysis"; Allen F. Voshell, November 30, "Diseases of Bones—Tuberculous Spine"; Curtis F. Burnam, December 3, "Cancer"; Louis P. Hamburger, December 15, "Minor Ailments—Aspects of Heart Disease." Dr. Thomas will also speak, December 21, on "Diseases of Old Age—Convalescence."

Dr. Sigerist to Lecture at Johns Hopkins.—A course of six lectures and a seminar course are being given at Johns Hopkins University School of Medicine during October and November by Dr. Henry E. Sigerist, professor of the history of medicine and director of the Institute of the History of Medicine of the University of Leipzig. Dr. Sigerist has been appointed visiting lecturer in the history of medicine at the school during the academic year 1931-1932. The lectures are on "The Evolution of Medicine in Its Cultural Aspects." The first, "Primitive Conceptions of Disease," was given, October 15. Coming lectures will be: October 22, "The Religious Character of Oriental Medicine"; October 29, "Philosophical Attitude of the Greek Physicians Toward Medicine"; November 5, "Dawn of Modern Medicine"; November 12, "Cultural Background of Modern Medicine," and, November 19, "Development of Medicine During the Nineteenth Century." The seminar course is on "The Interpretation of Medical Texts." The first lecture was given, October 16, on "The Edwin Smith Surgical Papyrus"; succeeding lectures will be: October 23, on "The Tablets Relating Cures Found at Epidauros"; October 30, "Problems of the Corpus Hippocraticum"; November 6, "The Fragments of the School of Empirics"; November 13, "The Treatise on 'The Interrogation of Patients' by Rufus of Ephesus," and, November 20, "Latin Medical Texts of the Early Middle Ages."

MASSACHUSETTS

Fund for Study of Pneumonia.—An annual appropriation of $36,200 for three years with a tentative agreement of support for an additional two years has been granted by the Commonwealth Fund of New York to the Massachusetts Department of Health for a study of pneumonia. The study is now in progress with the aid of a special advisory committee composed of Drs. Edward S. Calderwood, Arthur A. Cushing, Roger I. Lee, Edwin A. Locke, Frederick T. Lord, Robert N. Nye, Albert E. Parkhurst, Joseph H. Pratt, Milton J. Rosenau, Wilson G. Smillie and George L. Walker. Dr. Roderick Heffron has been appointed field director. The purposes of the investigation are to study the epidemiology, to promote prompt diagnosis, to encourage and facilitate earlier and more general therapeutic use of concentrated serum, to improve methods for serum production, to correlate the studies on serum production with the results following its clinical use, and to devise procedures for the future prevention, serum treatment and control of pneumonia. It was decided that certain hospitals should be chosen in different parts of the state, with the provision that they have or agree to have a special service for pneumonia. Various laboratories were to be chosen as pneumococcus type determination stations and their technicians trained at the expense of the Pneumonia Study Fund. These laboratories will give free typing service to physicians in the areas chosen for the study. The bacteriologic laboratory of the state department of health will continue to make type determinations. A special one-day pneumonia course will be offered by the Harvard University Medical School through its courses for graduates in Boston and other cities where there is sufficient demand. A five-year study of antipneumococcus immunity and of serum production is under way at the antitoxin and vaccine laboratory. The concentrated serum necessary to supply the selected hospitals and their consultants will be manufactured and distributed, and the costs will be paid from the special Pneumonia Service Fund.

MICHIGAN

Society News.—A joint meeting of the Wayne County Medical Society and the Detroit Obstetrical and Gynecological Society was addressed, October 6, by Dr. Rae T. La Vake, Minneapolis, on "Important Problems in Obstetrics and Gynecology." Dr. John E. Gordon, Detroit, addressed the Wayne County Medical Society, October 13, on "Practical Problems in Poliomyelitis."

Personal.—Dr. Claude R. Keyport, Grayling, has been appointed a member of the state board of registration in medicine to succeed Dr. William H. Marshall, Flint, resigned.——The degree of master of arts was conferred on Dr. Charles G. Jennings, Detroit, by the University of Michigan School of Medicine, Ann Arbor, at its eighty-second annual opening, September 28.

County Society Offered Police Protection.—The Wayne County Medical Society was recently offered police protection by the Detroit Police Department. This action was taken when it was noted in the police records that a physician had been held up and robbed while making a professional call. According to a letter addressed to the society, whenever a physician is suspicious of a professional call, he is requested to call police headquarters before starting out, and he will be met by an officer in the vicinity of the address to which he has been called.

MINNESOTA

Medical Alumni Meeting.—The annual meeting of the Minnesota Medical Alumni Association will be held in Minneapolis, October 30. Among the speakers will be Drs. Edward Starr Judd, Rochester, President, American Medical Association, on "Present Status of Surgery of the Gallbladder," and Solon Marx White, Minneapolis, "The Unimportant Heart Murmur." Dr. Irving McQuarrie, Minneapolis, will hold a pediatric clinic and Dr. Wallace H. Cole, St. Paul, an orthopedic clinic. There will also be demonstrations with slides and motion pictures of skin lesions and of neurologic gaits and a practical demonstration of injections for varicose veins.

County Society's Program.—The Hennepin County Medical Society was addressed, October 5, by Dr. Stephen H. Baxter, Minneapolis, on "O Tempora; O Mores," and Dr. Moses Barron, "Purposes and Function of a Medical Society." Dr. John P. Schneider talked on "Newer Concepts of the Anemias" before the society, October 7, and Dr. Charles H. Watkins, Rochester, October 14, on "Recent Progress in the Treatment of the Anemias." The society will be addressed, October 21, by Drs. Benjamin J. Clawson and Macnider Wetherby, "Certain Aspects in the Treatment of Arthritis," and, October 28, by Dr. Hyman S. Lippman, St. Paul, on "Impulsive Behavior as a Cause of Childhood Delinquency."

Society News.—Dr. George S. Wattam, Warren, was elected president of the Northern Minnesota Medical Association at its recent annual meeting in Hibbing; Dr. Cyril M. Smith, Duluth, was made vice president, and Dr. Oscar O. Larsen, Detroit Lakes, reelected secretary for the fourth successive year. The next annual meeting will be held at Crookston.——Drs. Jay Arthur Myers, Minneapolis, and Edward A. Meyerding, St. Paul, discussed the Mantoux test for tuberculosis at a meeting of the Dodge County Medical Society, October 9.——The north central branch of the American Urological Association will hold its eighth annual meeting in St. Paul, October 29-31. Dr. Frank Hinman, San Francisco, will lead a discussion of "Obstruction of the Upper Urinary Tract" and Drs. James R. Learmonth and William F. Braasch, Rochester, one on "The Myoneural Mechanism of the Urinary Tract." Clinical demonstrations and operative clinics will be held at the Ancker Hospital, St. Paul, the University Hospital, Minneapolis, and Glen Lake Sanatorium, Oak Terrace.——Drs. Moses Barron and Martin Nordland addressed the Minnesota Academy of Medicine, Minneapolis, October 14, on "Importance of Hepatomegaly and Splenomegaly in Differential Diagnosis" and "Relief of Pain in Advanced Tuberculosis of the Larynx by Means of Surgery," respectively.

MISSOURI

Society News.—Drs. Hyman I. Spector and Daniel L. Sexton, St. Louis, addressed the St. Francois-Iron-Madison County Medical Society, Farmington, September 15, on "Lung Abscess" and "Evaluation of Present-Day Endocrine Therapy," respectively.——Dr. Dudley A. Robnett, Columbia, addressed the Buchanan County Medical Society, St. Joseph, September 2, on "Carcinoma of the Cervix Uteri."——Drs. Otto Jason Dixon, Kansas City, and Lotis V. Murray, Pleasant Hill, addressed the Cass County Medical Society, Pleasant Hill, September 10, on "Osteomyelitis of the Skull Following Sinus Infection" and "Undulant Fever," respectively.——Dr. Louie F. Barney, Kansas City, Kan., presented two papers before the Greene County Medical Society, Springfield, September 11, on "Treatment of Acute Generalizing Peritonitis" and "Spinal Anesthesia."——The Jackson County Medical Society was addressed, October 13, by Drs. Ira H. Lockwood on "Roentgenographic Examination of the Breast in Health and Disease"; John H. Ogilvie, "Observations in the Course of a Statistical Analysis of End-Results of Breast Surgery," and Jabez N. Jackson, "Operative Approach to Cancer of the Breast."

NEW YORK

Society News.—Dr. George T. Pack, New York, addressed the Dutchess-Putnam Counties Medical Society, September 16, on "Management of Cancers of the Breast, Uterus and Intra-Oral Cavity."——The annual conference of secretaries of county medical societies was held in Albany, September 15. Drs. Louise W. Beamis Hood, Buffalo, and Alec N. Thomson, Brooklyn, spoke on "Erie County and Public Relations" and "The Health Examiner," respectively, and Mr. Louis J. Neff, Mineola, executive secretary for Nassau County, on "A County Society Publication."——Speakers at the scientific session of the twenty-fifth annual meeting of the first district of the Medical Society of the State of New York, Newburgh, October 7, were Dr. H. Burton Logie, on "Medical Nomenclature" and Dr. Harry Wessler, New York, "Lung Abscess—Newer Phases of Treatment"; Dr. Marcus A. Rothschild, New York, "Some Phases of Circulatory Failures and Their Treatment," and Verne A. Zimmer, director of compensation division, state department of labor, "Compensation and the Doctor."

Committee to Study Health Unit Plan.—A committee composed of the committee on public relations and that on public health and medical education, which was instructed by the house of delegates of the Medical Society of the State of New York to study the report of the governor's special health commission issued last February, held its first meeting in Albany, September 11. Dr. Thomas P. Farmer, Syracuse, was made chairman and Dr. Joseph S. Lawrence, secretary. The committee has asked for an expression of opinion from every county society in the state concerning the recommendation of the special commission for the compulsory establishment of county health units (THE JOURNAL, April 4, p. 1153). A bill providing for this change in organization failed to pass the New York legislature at its last session, but it is expected that a similar bill will be introduced at the next session. Three recommendations of the special commission were enacted into law: construction of three tuberculosis hospitals by the state, provision for the treatment of venereal disease at public expense, and establishment of divisions of cancer control and of orthopedics in the state department of health. Members of the committee are, in addition to Dr. Farmer and Dr. Lawrence, Drs. Martin B. Tinker, Ithaca; Edward G. Whipple, Rochester; Mahlon H. Atkinson, Catskill; William A. Groat, Syracuse; James E. Sadlier, Poughkeepsie; Augustus J. Hambrook, Troy; Oliver W. H. Mitchell, Syracuse; William D. Johnston, Batavia, president of the state society, and Frank Overton, Patchogue, editor of the state journal.

New York City

University News.—A course in orthopedic and bone and joint surgery will be given at the Post-Graduate School of Medicine, Columbia University, Twentieth Street and Second Avenue, October 19-24, under the direction of Dr. Fred H. Albee.

The Edward Gamaliel Janeway Lectures.—Sir Thomas Lewis, physician of the University College Hospital, London, will deliver the Edward Gamaliel Janeway Lectures, October 24, on "Ischemic Paralysis," and, October 26, will give a clinical demonstration on thrombo-angiitis obliterans, at the Blumenthal Auditorium, Mount Sinai Hospital.

Society News.—Drs. Shirley W. Wynne and Walter I. Galland were among the speakers on a general program on poliomyelitis at the meeting of the New York Physical Therapy Society, October 7.——Dr. Charles H. Mayo, Rochester, Minn., addressed the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, October 13, on "Medical Progress and the Diffusion of Medical Knowledge."——Dr. William Sydney Thayer, Baltimore, will demonstrate "The Importance of Simpler Methods of Thoracic Examination" at Mount Sinai Hospital, October 30.

OHIO

Hospital News.—Three Cleveland hospitals, St. Luke's, Maternity and Mount Sinai, have announced an instalment payment plan for maternity patients. The maximum total payment is $55 for prenatal care, delivery and two weeks' hospital care. The payments are $2 a week for six months.

Personal.—Dr. Henry J. Gerstenberger, professor of pediatrics, Western Reserve University School of Medicine, Cleveland, has been elected to honorary membership in the German Pediatric Society.——Dr. Albert M. Bleile, professor of physiology at Ohio State University College of Medicine, Columbus, has retired from active service with the rank of professor emeritus. He has been connected with the university for fifty-two years.——Dr. Walter B. Lacock, Columbus, has been appointed health commissioner of Hocking County, succeeding the late Dr. Morton Bland.

Society News.—Dr. William Kelley Hale, Wilmington, among others, addressed the Clinton County Medical Society, September 8, on causes of cancer.——Dr. Edson J. Emerick, Columbus, addressed the Fayette County Medical Society, September 3, on brain tumor.——Dr. James C. Walker, Jr., Dayton, presented a paper on "Causes of Lumbar-Sacral Backache" before the Miami County Medical Society, Troy, September 4.——Dr. Floyd C. Hendrickson, among others, addressed the Stark County Medical Society, Canton, September 8, on recent advances in urology.——Dr. Joseph Price, Columbus, discussed anesthetics at a meeting of the Ross County Medical Society, September 3.——Dr. Ludwig Adler, Vienna, Austria, addressed the Toledo Academy of Medicine, October 2, on "Vaginal Hysterectomy for Cancer of the Cervix."

PENNSYLVANIA

State Medical Election.—Dr. William H. Mayer, Pittsburgh, was installed as president of the Medical Society of Pennsylvania at its annual meeting in Scranton, October 5-8, and Dr. Charles Falkowsky, Jr., Scranton, was made president-elect. Dr. Walter F. Donaldson, Pittsburgh, was reelected secretary. The next annual session of the association will be held in Pittsburgh.

Society News.—Dr. Drury Hinton, Philadelphia, addressed the Montgomery County Medical Society, Norristown, October 14, on "Fracture Problems as They Interest the General Practitioner."——Three addresses on professional relationships will comprise the program of Delaware County Medical Society, Chester, November 12, as follows: "Relation of Dentistry to Medicine," Emerson R. Sausser, D.D.S., Philadelphia; "Relation of Pharmacy to Medicine, to Dentistry," Charles H. La Wall, Pharm.D., Philadelphia, and "Relation of Medicine to Pharmacy and Dentistry," Dr. Frank C. Hammond, Philadelphia.——Dr. William Cullen Bryant, Pittsburgh, addressed the Washington County Society, Monongahela, October 14, on "Spinal Anesthesia and Its Use in Urology."

Philadelphia

Society News.—Dr. William R. Gilmour addressed the Philadelphia Academy of Surgery, October 5, on fractures of the pelvis.——Dr. Thomas M. McMillan addressed the Philadelphia Medical Examiners' Association, October 5, on "Certain Aspects of Cardiology of Importance in Life Insurance Selections."——Drs. William Pepper and Francis R. Packard addressed the College of Physicians of Philadelphia, October 7, on "The First Medical School in the American Colonies" and "The First Hospital in the American Colonies," respectively.

Woman's Clinic for Health Appraisal.—Health appraisals are to be offered to women at moderate cost in a new clinic at the Woman's Medical College of Philadelphia. Dr. Sarah I. Morris, recently appointed professor of preventive medicine, will be in charge of the work. If treatment is required, patients are to be referred to their personal physicians. "It is intended to bring about the early reference to their physicians of those who by prompt attention to correctible conditions thus caught at their beginnings may be saved illness and economic stress later," the announcement said.

GENERAL

Meeting of Railway Surgeons Postponed.—The annual session of the American Association of Railway Surgeons, scheduled to be held in St. Louis, November 4-6, has been postponed for one year.

Society News.—Dr. John A. Tamisiea, Omaha, was elected president of the Aero Medical Association of America at its recent annual meeting in Kansas City.——Louis I. Dublin, Ph.D., New York, was installed as president of the American Public Health Association at the recent annual meeting in Montreal, and Dr. John A. Ferrell, New York, was chosen president. The 1932 meeting will be held in Washington, D. C.——At the annual meeting of the American Roentgen Ray Society, Atlantic City, in September, Dr. Leopold Jaches, New York, was installed as president and Dr. William A. Evans, Detroit, was made president-elect. Dr. Eugene P. Pendergrass, Philadelphia, is secretary. The next annual session will be held in Detroit.——The 1932 meeting of the American Proctologic Society will be held in Memphis, Tenn., May 6-7, it is announced. Dr. Curtice Rosser, Dallas, Texas, is secretary of the society.

Report of the Milbank Fund.—Appropriations of the Milbank Fund for 1930 amounted to $1,436,425.83, exceeding the grants made during any of the twenty-six years of its existence, according to the annual report recently issued. These appropriations were made to twenty-five organizations, through which the fund participated in thirty-six projects in health administration, health education, research and social welfare. Two of the fund's projects, the health demonstrations in Syracuse and in Cattaraugus County, were terminated at the end of the year. Local authorities have now taken over the demonstration programs and the fund will hereafter participate only in research projects. In the Bellevue-Yorkville demonstration in New York City, which is being continued, activities during the past year included campaigns against tuberculosis, diphtheria and venereal disease and a special drive for periodic health examination. The fund financed a committee on neighborhood health development, through which a plan for the construction of sixteen health centers in New York was worked out. Other activities that have received financial aid include the Association for Improving the Condition of the Poor, the Judson Health Center, the East Harlem Health Center and the Bowling Green Neighborhood Association. For the second year the fund financed the operation of a rural health department in China (The Journal, September 5, p. 714). A grant of $65,000 was made to the diphtheria prevention campaign begun in New York in 1929. Two fifths of the fund's disbursements in the past year, $607,250, were in the field of social welfare and relief, the largest ever made in this field in any one year, according to the report. In addition, surveys were conducted, both independently and in cooperation with other agencies, on various phases of health administration, health education, vital statistics, epidemiology and other topics. In 1930 Edward W. Sheldon, president of the fund since its beginning, resigned and was succeeded by Albert G. Milbank.

LATIN AMERICA

School of Medicine to Be Reestablished.—The School of Medicine, Surgery, Dentistry and Pharmacy at Granada will be reestablished under a decree recently approved by the Nicaraguan Congress, according to the *Bulletin of the Pan American Union*. The chief executive is authorized to designate the necessary professors. According to the decree, it was stated, students in the schools at Leon and Granada who pass successfully the examinations at their own school must take a general examination at Managua before they will be authorized to practice their profession. The board of examiners will be composed of two professors from Granada, two from Leon, appointed by the respective schools, and a physician from Managua appointed by the ministry of public instruction. The school which the student attended can confer the degree on him only on receipt of a certificate from the board to the effect that the student has passed his examination.

FOREIGN

New Journal on Orthopedics.—A quarterly journal, the *Revista de Ortopedia y Traumatologia*, has recently appeared in Buenos Aires, Argentina. Drs. J. Valls and C. E. Ottolenghi are the editors. The first issue contains, in addition to original illustrated articles on several topics related to orthopedics, fifteen pages of abstracts from current literature on orthopedics.

Memorial to Hughlings Jackson.—A fund sought by British neurologists for the purpose of endowing a triennial lecture in honor of Hughlings Jackson, who died in 1911 (The Journal, June 20, p. 2134), has been achieved, it is reported. A gold medal bearing a portrait of Dr. Jackson and an honorarium of £100 will be awarded to the lecturer, who will, it is hoped, be a man of international reputation. Fifteen subscriptions were received from American physicians, according to the treasurer.

Competitive Prizes Again Offered.—The *British Medical Journal* notes that the following prizes are offered: Katherine Bishop Harman Prize, Middlemore Prize and the Sir Charles Hastings Clinical Prize. The purpose of the Katherine Bishop Harman Prize, having a value of £80, is the encouragement of study and research directed to the diminution and avoidance of the risks to health and life that are liable to arise in pregnancy and childbearing. All medical practitioners will be eligible to compete. The Middlemore Prize consists of a check for £50 and a certificate, and will be awarded this year to the author of the best essay on "Sympathetic Ophthalmia Before and After 1914." The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, was established for the promotion of systematic observation, research and record in general practice. Any member of the British Medical Association is eligible, the work to include personal observations and experiences collected by the candidate in general practice. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize. Essays for all prizes must reach the medical secretary, British Medical Association House, Tavistock Square, London, W. C. 1, not later than December 31. They must be signed by a motto and accompanied by a sealed envelop marked with the same motto and containing the candidate's name and address.

Government Services

Army Personals

Major Carl R. Mitchell, assigned at Fort Crook, Nebraska, effective on completion of present tour of foreign service; Major Leonard W. Hassett, relieved at Fort Robinson, Nebraska, and will sail from San Francisco about November 25 for the Philippine Department; Major Forrest R. Ostrander, relieved at Panama Canal, C. Z., effective on completion of tour of foreign service, and assigned at Fort Sam Houston, Texas; Lieut. Col. George W. Cook, relieved at Fort Leavenworth, Kansas, and will sail from New York about January 7 for the Panama Canal Department; Capt. Paul Hayes, relieved at Fort Sheridan, and will sail from New York about January 13 for the Hawaiian Department.

Increase in Ex-Service Men in Government Hospitals

Records of the Veterans' Administration show that the government was providing hospitalization for 39,623 ex-service men on July 31, as compared with 30,677 on July 31, 1930, an increase of 8,946, or about 30 per cent. Nearly half of the number receiving care are psychiatric patients, about one fifth are tuberculous and the remainder suffer from a variety of general diseases. On July 31 of this year there were 3,166 unoccupied beds in all government hospitals as against 2,530 in 1930. Of veterans awaiting hospitalization there were this year 90 with service-connected disabilities and 3,426 with non-service-connected conditions. According to the veterans' administrator, the primary factors determining the number carried on the waiting list are turnover in applications and personal reasons. Delay for personal reasons is primarily due to the fact that hospitalization for minor conditions has been authorized, and veterans may set a date after which they will accept hospitalization. Emergency cases are not carried on the waiting list, it was stated, as hospitalization is authorized in these cases without regard to the type of disability.

Changes in Veterans' Administration Personnel

Recent issues of the Medical Bulletin of the Veterans' Administration note the following changes in personnel, among others:

HOSPITALS

Dr. Victor H. Bean, to Marion, Ind.
Dr. Clinton G. Beckett, to Marion.
Dr. Forest G. Bell, resigned at Hines, Ill.
Dr. Thomas W. Bennett, reinstated at Boise, Idaho.
Dr. William W. Bourke, assigned at Knoxville, Iowa.
Dr. Ambrose McC. Brown, reinstated at Dwight, Ill.
Dr. George E. Burdick, to East St. Louis, Ill.
Dr. Bennette A. Burks, reinstated at Rutland Heights, Mass.
Dr. James B. Chandler, to Fargo, N. D.
Dr. Rembert J. Coney, appointed at Portland, Ore.
Dr. Edwin R. Curran, resigned at Coatesville, Pa.
Dr. Albert M. Eaddy, appointed at Coatesville.
Dr. Pierre J. Fisher, to Northport, L. I.
Dr. Morris Feinstein, to Northport.
Dr. Paul M. Fulmer, resigned at Kansas City.
Dr. Edwin P. Hall, appointed at Memphis, Tenn.
Dr. Stanton S. Hoechstetter, to Newington, Conn.
Dr. John W. Hodges, resigned at Hines, Ill.
Dr. Arthur Lederer, reinstated at Jefferson Barracks, Mo.
Dr. Alexander C. Leonardo, to Washington, D. C.
Dr. David S. Levy, assigned at Hines.
Dr. James A. McAllister, resigned at Atlanta.
Dr. John W. Myers, resigned at Hines.
Dr. Rosco E. Petrone, to Camp Custer, Mich.
Dr. Harry H. Sand, to Hines.
Dr. Paden E. Woodruff, to Lyons, N. J.

REGIONAL OFFICES

Dr. David H. Allen, to Cincinnati.
Dr. Charles L. Anderson, resigned at Washington, D. C.
Dr. James C. Ballard, resigned at Little Rock, Ark.
Dr. Walter A. Black, to Dallas, Texas.
Dr. Wallace B. Cannon, to Nashville, Tenn.
Dr. Franklin Cohn, appointed at New York.
Dr. Thomas E. Cook, resigned at Dallas.
Dr. Ralph G. Cressman, to San Francisco.
Dr. Hiram Gallagher, to Los Angeles.
Dr. William E. Gardner, resigned at San Francisco.
Dr. Sidney J. Harper, Jr., resigned at Cincinnati.
Dr. John K. Ross, to Washington, central office.
Dr. Leonard L. Wilson, appointed at Little Rock.

The Government Needs Physicians

The U. S. Civil Service Commission announces open competitive examinations for senior medical officer, medical officer and associate medical officer. Applications for these positions must be on file with the commission at Washington, D. C., not later than December 30. The commission reserves the right to issue subsequent notice closing the receipt of applications before that date. The examinations are to fill vacancies in the Veterans' Administration, U. S. Public Health Service, Indian Service, Coast and Geodetic Survey and Panama Canal Zone. The entrance salary for senior medical officer is $4,600 a year, for medical officer, $3,800 a year, and for associate medical officer, $3,200 a year. Competitors will not be required to report for examination at any place but will be rated on their education and experience. Further information may be had from the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city or from the civil service commission, Washington, D. C.

Memorial to General Kennedy

A Gothic lantern made of wrought iron was recently placed in the Memorial Chapel of the Army Medical Center, Washington, D. C., in honor of the late Brig. Gen. James Madison Kennedy, medical department, U. S. Army. The memorial was made possible by contributions from officers and nurses of the medical department of the army. General Kennedy served, among many other positions, as assistant to the surgeon general, and as commandant at the Army Medical Center in Washington. He died, Oct. 15, 1930, in the Letterman General Hospital, San Francisco.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 19, 1931.

Annual Report on Public Health

The report for 1930 on the state of the public health of England and Wales by the chief medical officer of the ministry of health, Sir George Newman, has just been published. The year was exceptionally healthy, for it showed the lowest total death rate and the lowest infant mortality yet recorded. The principal causes of death were: diseases of the heart and circulation, 245 per thousand deaths; cancer, malignant disease, 127; bronchitis, pneumonia and other respiratory diseases, 114; diseases of the nervous system, 90; tuberculosis, 79. This classification is followed from year to year and usually shows the same order, but on no previous occasion has the number of deaths from cancer exceeded those from respiratory diseases. The cancer deaths numbered 57,882 and again showed an increase (against 56,896 for the previous year). This is equivalent to a death rate of 1,454 per million persons living. "The tendency to regard the annual increase of mortality as evidence of a growing inability to control this disease is perhaps natural but is unduly pessimistic. If it be true, as is generally agreed, that a fraction of the increase is a natural consequence of the higher average age at death and that another fraction is a result of greater diagnostic ability, especially in cancer of the deeper organs, it is clear that in the absence of some striking improvement in methods of treatment an annual increase of recorded mortality should not only be not received with surprise or dismay, but may actually be expected for some years to come, bearing in mind the long interval usually elapsing before the preceding pathological condition develops malignancy."

THE DECLINE OF TUBERCULOSIS

The number of deaths from all forms of tuberculosis was 35,745 against 37,990 in 1929 and 36,623 in 1928. The death rates per million of population were: males, 1,037; females, 770; persons, 898. For pulmonary tuberculosis the corresponding figures were: males, 863; females, 624. The deaths from nonpulmonary tuberculosis were only half those in 1918. The rates for 1930 were the lowest ever recorded in this country. All ages and both sexes shared in the decline, which was more marked in childhood and less marked in young adults and in the old than at other ages. This harmonizes with the experience of recent years. The instruction in hygiene now given in the elementary schools is regarded as an excellent foundation on which popular knowledge as regards tuberculosis may be imposed. Similar instruction in the higher schools is recommended. A considerable step has been taken by the public in recognizing that tuberculosis is an infectious rather than an hereditary disease. It should also be recognized that, treated in time, it is essentially a curable disease; that the great majority of people become infected with tuberculosis, while comparatively few suffer from it; and, above all, that massive and continuous infection is the danger.

THE LOWEST INFANT MORTALITY BUT NO LOWERING OF PUERPERAL MORTALITY

The infant mortality was the lowest recorded, being 60 per thousand births as compared with 74 in 1929. But there continued failure to secure any lowering of the puerperal mortality, which indeed showed a slight increase on 1929, being 4.40 as compared with 4.33.

ANTENATAL CENTERS

In recent years there has been a great improvement in the teaching of antenatal care, both to medical students and to pupil midwives. With reference to antenatal centers, it is possible that the antenatal clinic, especially in the larger cities, may to some extent disappear, leaving antenatal supervision to the private physician with the assistance of a small number of consultative antenatal clinics staffed by specialists. But whatever the ultimate destiny there will remain a need for antenatal clinics, particularly in industrial and urban areas. The full development of prenatal supervision will depend greatly on the efficiency of these clinics, as regards both the advice given and the training they provide for physicians.

INCREASE IN SICKNESS CLAIMS

Despite the indisputable fact that the health of the people has immensely improved in recent years, sickness claims under the insurance act have rapidly increased. These claims are an example of the widespread tendency to get something for nothing, stimulated by socialistic legislation. The amount paid by the lodges for sickness and disablement benefit was $49,000,000, which covers a period of loss of work amounting to the almost astronomical figure of 510,577 years. The report points out that though laxity of certification is widespread it is by no means general; to the certification of a large number of physicians no exception can be taken. "If the doctor furnishes certificates incorrectly or unreasonably extending the period of incapacity or prescribes something akin to 'public assistance' on request, he may be performing a service of charity or even indirectly of medical aid—but he is rendering a direct disservice to the whole system of health insurance." What is necessary is that representative professional opinion should be brought to bear on those whose standard is defective, and the development of a stronger sense of responsibility. It is satisfactory to observe signs of increased care in the certification of incapacity.

IMPROVEMENT OF THE NUTRITION OF THE PEOPLE

Nutrition is discussed in a section on the relation of food to health and disease. Sir George states that healthy nutrition is something much wider than mere feeding or stoking the engine. Malnutrition of the school child in this country has declined in a single generation from 10 to 1 per cent. This remarkable change has been due to the medical care of the child, to supplementary feeding at school, and to far-reaching social improvement and higher wages in the home. Somewhat comparable amelioration has taken place among the adult population. The army canteens during the war, the industrial canteens in factories, the improved dietaries in hospitals, sanatoriums and infirmaries, the enormous development of the catering trade, the manufacture of prepared foods, the ever widening public service, an increased wage—all have contributed to improved nutrition. The whole dietary has undergone reform —food, fruit, fish, meat and dairy products are brought from distant sources and transported under new methods of refrigeration, canning and packing. Yet our nutrition leaves much to be desired. There is still much apathy and ignorance in the choice of foods, often with deplorable cookery. Many hungry consumers bolt their food or wash it down with tea or beer. Some are underfed, but many are overfed. Science is not sufficiently applied to nutrition. With a view to the better application of modern advances to nutrition, a committee has been appointed to tender advice to the ministry with especial reference to dietaries for use in public institutions and the instruction of the people in the means of improving their nutrition.

A New Investigation of Encephalitis Following Vaccination

The ministry of health has invited the assistance of all practicing physicians to enable the ministry to maintain a full investigation of the characteristics of the acute disease of the central nervous system (such as meningitis of any kind or origin, encephalitis, or poliencephalitis) which has been postvaccinal, this term being used in the sense that the first symptoms have occurred within four weeks of vaccination. A similar request was made in 1926 to enable all the information so obtained to be placed before a committee appointed by the ministry and the medical research council to consider vaccination questions. This committee made two reports, in July, 1928, and January, 1931 (The Journal, February 7, p. 451). Its work was greatly facilitated by the information supplied, and, as there is still need for further study of these rare cases, the request is repeated. Similar information is desired of the occurrence of cases of acute disease of the nervous system following such acute infections as measles, German measles, chickenpox, whooping cough or influenza. The committee on vaccination found that when these sequels were fatal the lesions presented a close resemblance to those of postvaccinal encephalitis. Information of the kind requested will permit of local inquiry to ascertain clinical details which subsequently may not be obtainable and may enable the ministry to arrange for expert postmortem examinations and pathologic examination of specimens. The request to physicians which is therefore made is that when called to any case of disease of the central nervous system with acute onset they will inform the ministry as soon as possible if vaccination has preceded the onset of symptoms within four weeks, or if the symptoms have immediately followed an acute infectious illness. In view of inquiries which have been made as to the possibility of using a specific treatment in postvaccinal encephalitis, the Lister Institute has prepared an antivaccinal horse serum, doses of which can be supplied on application to the ministry. Attention is also called to the success obtained in certain cases on the continent by the treatment of this condition by intravenous injection of serum derived from persons who have recently been vaccinated.

Lord Moynihan's Loss

Lord Moynihan, who has just returned from South America, has suffered irreparable loss from the burning of his office in Leeds. He kept all his papers in the house. Everything is gone—his records of every patient that he had ever seen, a multitude of letters, and copies of the first editions of all the books he has written. He has also lost some valuable pictures of great surgeons.

PARIS

(From Our Regular Correspondent)

Sept. 2, 1931.

Report of the Committee on the B C G Vaccine

The Academy of Medicine, at the request of Professor Calmette, appointed a committee to study the opinions from different sources on the value of his antituberculous vaccine (B C G). The committee pursued the inquiry for several weeks, making a comparison of all the statistics published to date in any country; its conclusions have recently been presented by Dr. Lesné. From these conclusions it appears that no instance has been found in which this vaccine, introduced into the organism of a child, has been transformed and has produced virulent tuberculous lesions. Furthermore, these conclusions bring out that the B C G vaccine, ingested by the new-born, is generally well tolerated. As in all other vaccinations, one observes certain transient phenomena such as swollen glands. It is emphasized also that, after children in a suspected environment have received the B C G vaccine, they should be separated from such environment for at least six weeks. Mr. L. Bernard supplemented this report by the presentation of statistics on antituberculosis vaccination in the canton of Thann, which are the result of Mr. Kern's endeavors and which are entirely favorable to the use of the B C G vaccine.

Cacao as a Source of Vitamin A

From a paper by Prof. Marcel Labbé, in collaboration with Heim de Balzac and Lerat, presented at a meeting of the Société de thérapeutique, it appears that vitamin A, the factor of growth, is found in considerable amounts in the cacao seed and its extracted products. After identifying the vitamin, they sought to determine approximately, through experimentation, the proportion of vitamin A that cacao contains, on the basis of the relative stimulation of growth in the white rat previously subjected to a deficient diet. Under these conditions the growth underwent a manifest acceleration (from 30 to 40 per cent). The health of the animals thus treated was preserved much longer than that of animals subjected to a diet deficient in vitamin A, but the appearance of xerophthalmic manifestations is not indefinitely retarded. These observations seem to indicate that in alcohol extracts of cacao and the pods of cacao seeds there is a "vitasterol" that may be converted into an active vitamin A. These facts seem to prove the value of adding cacao, and preparations that contain it, to the diet of children.

The Excess of Physicians in France

After many long discussions on the overcrowding of the medical profession in France, which is due to the excessive number of foreign physicians, more numerous here proportionately than in any other country of the world, the Academy of Medicine has adopted a formal resolution, proposed by Professor Balthazard in the name of the committee that the academy appointed to study the question. The resolution demands that parliament shall pass soon the Armbruster bill, which would provide that the government diploma, which alone grants the right to practice medicine in France, shall be accorded only to students who have pursued all their medical studies in France, and who presented, before entering on such studies, a French diploma covering the preliminary classical studies, without any credit being allowed for foreign diplomas. An exception, however, is made with respect to Roumanian students, a special convention having been entered into with Roumania, seventy years ago, which accords to French graduates the privilege of practicing in Roumania. Their number, however, must not exceed fifteen for any given year—from all the medical schools of France. Finally, in no case shall the university diploma, which is granted to foreigners who have pursued their medical studies in France, ever be transformed afterward into a government diploma, as occurs today, all too frequently, on the recommendation of foreign ambassadors.

The Medical Profession and Social Insurance

Increasing difficulties reveal every day the impossibility of applying the absurd social insurance law in its entirety—a law that is today disapproved even by its beneficiaries, although they acclaimed it loudly before its introduction. They now find that they are subjected to complicated and discouraging formalities, and that in case of illness they receive only insignificant cash benefits. But the members of parliament who supported the law as a political maneuver and who have succeeded in placing in the bureaus of the social insurance administration more than 60,000 of their political friends, stubbornly refuse to rescind the law, in spite of the multiplicity of demands. They accuse the physicians of being the chief authors of the trouble that has arisen in the functioning of the law, because the medical syndicates fought against and defeated the proposed adoption of a special tariff for the holders of social insurance. The insured pay the physicians the usual price for office consultations and domiciliary visits, for which the administration of the sick benefit funds grants them a certain fixed sum, which is always much less than they have expended. The members of parliament contend that the physicians have raised the price of their consultations since the social insurance law became effective. If there is any truth in the contention that physicians have raised their prices, it is explainable by the fact that, simultaneously with the passage of the social insurance law, parliament enacted laws providing for considerable increases in taxes and likewise permitted increases in house rent, whereby the professional expenses of physicians are augmented, which, in turn, compelled them to advance somewhat their fees, in the same manner as the merchants and manufacturers have raised their prices. The members of parliament, however, think they are all powerful and refuse to understand or to accept the inflexible nature of economic "laws," which are totally indifferent to the desires of the legislators. In the chamber of deputies and in the senate, the minister recently gave utterance to threats against the physicians, whom he persists in accusing of compromising the functioning of the law. He has announced that, if it should become necessary, he will create a special body of panel physicians, paid by the government, to treat the insured, which would result in the other physicians, not belonging to the panel, losing their patronage, which would bring ruin to large numbers of the physicians. It is not likely, however, that these threats can ever be carried out.

Chicagoan Presents a New Preventorium in the Pyrenees Region

At Arbonne, in Basses-Pyrénées, the infirmary and the medical services of a new preventorium were recently opened with ceremonies presided over by Mr. Léon Bérard, minister of justice. Madame Hannah Rosenthal, founder of the pavilion, turned over the keys to Mr. Bérard, who expressed his hearty thanks to Mr. Benjamin Rosenthal of Chicago, the great benefactor of Arbonne.

BERLIN

(From Our Regular Correspondent)

Aug. 31, 1931.

Drug Addiction in Germany

Privatdozent Kurt Pohlisch, of the Psychiatrische Universitätsklinik in Berlin, took upon himself the enormous task through exact control and comparison of all the prescriptions issued in Germany in 1928 for opiates to obtain an as nearly exact criterion as possible for the amount of drug addiction prevalent in Germany. Germany, as the leading country in the manufacture of opium preparations, is especially interested in ascertaining to what extent in its own territory the use of opium products may be regarded as coming under the head of drug addiction. The widely different estimates encountered are due chiefly to the difficulty of separating the part that may be considered misuse of opium from the part that constitutes necessary medical use. The German opium law furnishes the basis for the collection of reasonably reliable statistical material. In 1928 the German pharmacist, in supplying opium products containing morphine in excess of a restricted amount, was obliged to retain on file the prescription. The element of error in a computation based on the records of pharmacists will doubtless not be too low if placed at from 20 to 30 per cent. Morphine addicts who obtain their supply from month to month exclusively from bootleggers are rare in Germany. However, the amount of narcotics illegally sold in Germany is not always correctly estimated when the statements are based solely on the conditions in certain large cities. Generalizations as to conditions in the German reich as a whole are not always accurate if based solely on such limited observations. Illegal traffic in cocaine is, to be sure, rather common. The aforementioned collection of prescriptions concerns 3,500 persons with an average daily consumption of more than 0.1 Gm. of morphine hydrochloride, during the first six months of 1928. The other preparations are expressed in terms of morphine hydrochloride. Consequently, on the basis of 3,500 addicts, there are in Germany 0.56 addict per 10,000 of population, or, with readjustment in view of the aforementioned sources of error, 0.7 addict, and, taking only persons more than 20 years old, a little under 1.0 addict. Since, in 1928, chronic misuse of narcotics was rare in persons under 20 years of age, that group was not included in the population subject to addiction. The percentage of narcotic addicts is thus comparatively small. Of these 3,500 cases (with more than 0.1 Gm. of morphine hydrochloride a day), 1,276, or 37 per cent, are of persons using only from 0.1 to 0.2 Gm. a day. This group the clinician sees more rarely than the general practitioner, so that they, in contradistinction to the users of heavy doses, have been heretofore underestimated. Extremely high daily doses, especially those in excess of 0.2

Gm., are rare. The distribution of users according to sex shows for men an addiction of 0.69 per 10,000 and for women 0.46 per 10,000 of population; or, considering only the population more than 20 years of age, about 1.0 for men and 0.76 for women per 10,000 of population. It is well known that a high percentage of the persons engaged in the therapeutic services are morphine addicts. Drug addiction among the medical profession of Germany amounts to about 100 per 10,000, or about a hundred times that of the adult general population. Thus, one in every hundred physicians in Germany is a chronic addict to narcotics. This regrettably vast difference between nonphysicians and physicians is even more startling if one considers the high percentage of physicians among the users of large daily amounts and the large number addicted to both morphine and cocaine. In many instances (especially in the rural districts), groups of morphine addicts have been traced to the influence of resident physicians who were themselves addicts. In this connection, it is important to note that the frequency of addiction among physicians, in marked contrast to the behavior of the general population, is not essentially different in the rural districts from the incidence in the cities. The frequency of addiction, considered with reference to the population of the communes, shows that in cities with from 20,000 to 100,000 of population the addiction is about the average, namely, 0.56 per 10,000, but, on the other hand, about 1.0 per 10,000 for cities of more than 100,000 inhabitants, and only about 0.3 per 10,000 of population in communes with a population under 20,000. The predominance of the large cities is therefore distinctly apparent and finds its expression especially in the figures for Berlin, Hamburg and Munich, in all of which the proportion of addicts exceeds 1.0 per 10,000. The distribution of the opiates according to the type of the preparation shows, from an examination of the prescriptions, a predominance of morphine hydrochloride, which is in complete agreement with the observations in the clinics. In view of the wide distribution in other countries, especial interest attaches to diacetylmorphine (heroin). Among the studied collection of prescriptions it was recorded only ninety-nine times, thirty-three of which were in combination with other alkaloids.

Since the revised opium law went into effect, April 1, a considerable reduction in the misuse of narcotics may be expected. In any event, since that date the applications for withdrawal treatment in the psychiatric clinic of the Charité Hospital in Berlin have greatly increased, which fact is ascribed to the greater difficulty of procuring narcotics.

Increase of Embolism and Thrombosis After Operations

For years, the surgeons of all civilized countries have observed with anxiety the constantly increasing number of cases of embolism and thrombosis after operations, for which no explanation could be assigned. In turn, incriminating charges have been brought against the increased use of intravenous injections since the war; the increased ingestion of potassium salts as a consequence of a wider use of artificial fertilizers, and respiratory diseases, particularly influenza, which since 1918 has appeared in such a modified form, until a short time ago Prof. E. Payr, the director of the Chirurgische Universitäts-Klinik in Leipzig, gave expression to the suggestion that the damage might be caused by the vitiated atmosphere in the large cities, and, more particularly, by the exhaust gases from automotive vehicles, the dust and smoke evils, and the contamination of the air by harmful vapors given off by manufacturing plants. It has been noted that most of the cases of embolism and thrombosis arising in the clinic mentioned occur in city dwellers. Acting on Professor Payr's suggestion, Dr. Kuntzen conducted a series of animal experiments to discover whether or not, through chronic poisoning with the exhaust gases of automobiles, an increased disposition to thrombosis may be brought about, and in a recent number of the *Deutsche medizinische Wochenschrift* he reports his conclusions. The animals used for his experiments were rats and rabbits. Each day the animals were placed in cages having a cubic content of 110 liters. Exhaust gases were then conducted into the cages. The gas thus introduced each time was from 2 to 3 liters in amount, and the animals were subjected to such gases every day for from twenty to thirty minutes. This preliminary treatment of the animals was continued for two and one-half months, and they were then examined as to their predisposition to thrombosis. By an injection into the portal vein, a slight injury of the vessel wall was produced, which sufficed to cause the death of four of the fifteen treated rats, within from twenty-four to forty-eight hours, from thrombosis of the portal vein. Of the ten experimental animals which were not treated with gas but which were operated on in the same manner as the treated animals, not a single one died. There was therefore a distinct difference in the behavior of the gas treated animals, in that the animals exposed to the exhaust gases showed an increased disposition to thrombosis.

Hence it is possible that we have in the increasing amount of exhaust gases in the air that we breathe, to which a large proportion of the urban populations is exposed, an important factor in the increased incidence of embolism and thrombosis. The question as to how these damaging effects may be avoided promises to be even more difficult, especially as we do not yet know what ingredients of the gases produce the changes.

ITALY

(From Our Regular Correspondent)

Aug. 31, 1931.

The Third Congress of Bacteriology

The third Congresso nazionale di microbiologia was held recently in Milan, having been opened with an address by Prof. Serefino Belfanti, director of the Istituto sieroterapico milanese. Professor Montemartini presented a paper on the pathogenesis of the diseases of plants, in which he described the natural defenses of plants against parasites. The speaker took up then the fundamental unity of the pathology of all living things and stated that, by taking account of this fact, it will perchance be possible also in vegetable pathology to develop a direct pharmacotherapy toward the plant; namely, a true and proper curative intervention that will not have solely in view, as at present, the destruction of parasites.

Professor Pepeu discussed antidiphtheritic vaccination by means of anatoxin, and showed, on the basis of statistics that he had collected, that the method is harmless and gives evidence of a high vaccinating potency. As for the technic to be used, while conceding to the nasal route the great advantage of being more convenient, the speaker expressed a preference for the subcutaneous route, at least as long as an anatoxin with the present antigenic potency is employed. Prof. Maggiora Vergano confirmed these good results and stated that the statistics on the present immunization secured in Italy are rather favorable. He emphasized also the need of extending the provisions that the general management of the public health service has made in this connection.

Professor Puntoni, of the University of Rome, presented a communication on the topic "Results of Modern Research on the Biology of the Tubercle Bacillus." He said that the biologic test constitutes one of the most reliable aids for the diagnosis of tuberculosis; but in some cases (bacilli of slight experimental pathogenic potency) the cultural methods offer advantages (especially that of Hohn), and have also the great advantage of rapidity. As regards filtrability, the great majority of authors accept the belief in the existence of a filtrable form of the bacillus. Calmette's theory that the virus passes through the filter in the form of an ultravirus is confirmed by recent researches of Sanarelli and Alessandrini, who have brought about the passage of the virus through pouches of collodion impermeable to the diphtheritic and the tetanic toxins. The lymphoglandular congestion is the only lesion discoverable that is provoked by the ultravirus. Recently, Sanarelli and Alessandrini obtained the classic picture of the disease only after the third passage of a series. These results give rise to the thought that possibly certain forms of human pathology still obscure may be ascribed to the ultravirus. The less toxic and pathogenic filtrable forms might traverse insidiously the placental barrier without arousing any defense reaction. Vaccination is possible only by the use of live bacilli. Hence, vaccination has been strengthened since the discovery of tubercle bacilli that have become permanently avirulent. To these belong, in addition to the Calmette vaccine, the horse bacillus of Vallée, the human bacillus of Maggiora and Ilvento, that of Puntoni and Sabbatucci, and still others. According to the speaker, stable avirulence brought about in the tubercle bacillus is not an exceptional fact, so that the knowledge of avirulent human strains will make it possible to attain that maximum degree of specificity to which allergic reactions must tend.

Professor Zironi spoke on specific hyperreactivity in infections, and explained sensitization to microbic antigens. The fact can be demonstrated experimentally and is of practical importance since it may explain the progress of the disease with a tumultuous course, the recurrences and unforeseen exacerbation.

The third day of the congress was devoted wholly to the study of blood groups. Professor Lattes presented a paper on the subject, in which he spoke on the quantitative variations of the group-specific properties. It has been observed, Professor Lattes stated, that the isoreactions that characterize a blood group are not quantitatively equal in all the individuals of the same group. The speaker studied the multifarious causes that influence such variations, dividing them into artificial, physiologic and pathologic, and advanced the theory that the exchange of the group-specific substances may have some relation with hematopoiesis and hemocateresis. Later studies will throw more light on the important question.

Centers for the Diagnosis and Treatment of Tumors

The general management of the public health service has sent to the prefects of the realm instructions in regard to the development and control of the services for the diagnosis and the treatment of tumors. Many of these services have been created through the initiative of the Lega contro il cancro. Others have been established by university institutes or hospital-organizing societies, but not always with equally good conceptions and aims. In accordance with the present regulations, they are all to be reorganized and improved in order that they may fulfil their chief purpose, which is the early diagnosis of tumors and their timely treatment.

Each center must have a definite governing body that will assume the responsibility for its management. That may be the province, the chief town or a hospital. The anticancer centers should be annexed to a large hospital, either special or general, but they should always be equipped in such a manner that they can apply all the forms of treatment that may be judged necessary in the various cases. Each center should have an outpatient department open to the public for free consultations. Each center will have a sanitary director, and each single service will have its specialist. The fundamental technical services must include: (1) microscopic establishment of the diagnosis by means of biopsy; (2) surgical treatments (the centers, in agreement with clinics or hospitals, will organize special hospital departments for the treatment of tumors; patients with a diagnosis of "operable malignant tumor" are considered by the minister of health as entitled to immediate admission, in view of the certainty of a fatal outcome if the intervention is postponed), and (3) physical therapy. Treatments with roentgen rays or with radium preparations will be free or in accordance with a tariff schedule agreed on, and will be given, either ambulatorily or with hospitalization, in public institutes well equipped for the purpose.

Each center will have a set of filing cabinets. The records will be arranged in such a manner as to facilitate the collection of material for statistical studies on tumors, and also with a view to keeping in touch with the patients after they have left the center.

Before a center can begin to function, the minister has ordered that it shall be inspected by the "provincial physician," to make sure that the center has the apartments, the personnel and the equipment required for the purpose.

Malaria in Children

At the session of the Calabria chapter of Medicina infantile, held at Cosenza, Prof. Rocco Jemma, clinical pediatrician of the University of Naples, discussed the subject of malaria in children. The speaker pointed out that the most cursory clinical examination and the discovery of the specific parasite had caused the erroneous conception to be abandoned that malaria is not a disease of children. The incorrect conception was based on the wrong idea that the child is a man in miniature, who must present for every disease the same symptoms that occur in the adult. The study of malaria in the child has been greatly advanced in recent years, and today it is well established that the disease presents in the child different aspects from those appearing in the adult. The symptomatology in the child is so varied and so complex as to necessitate special study, and constitutes one of the most recent acquisitions of pediatrics. In place of the conception that malaria does not attack the child has arisen the idea that it may be of congenital origin; namely, a manifestation of a child born of a malarious mother, the plasmodium having been directly transmitted through the placenta. Older clinical observations supported the view that the action of the plasmodium on the product of conception is indirect and is manifested by abortions, premature births and even dystrophia in children born at term. The speaker described the aspects of congenital malaria, which he considers easily possible, and then took up the clinical aspects presented by the child with malaria, whether the acute or the chronic form. In the acute form, all the ordinary symptomatology of an attack of malaria in the adult is replaced by varied and complex manifestations. The chill may be lacking or may be replaced by vomiting and convulsions. The febrile curve is not characteristic. Often there are manifestations affecting the digestive apparatus: thirst, indigestion, gastro-enteritis; the nervous system: meningism, disturbances of the cerebrospinal fluid; the urinary apparatus: transient albuminuria, acute interstitial nephritis, polyuria, or the cardiovascular and the respiratory apparatus. Professor Jemma considered also the atypical forms of malaria, and especially the latent forms, the malarial equivalents, and hypothermic malaria. The speaker drew then the clinical picture of chronic malaria, calling attention to the frequent changes affecting the visceral organs. Finally, he described the damaging effects that the disease may exert on the physical and the mental development of the child.

RIO DE JANEIRO

(From Our Regular Correspondent)

Sept. 15, 1931.

The Jacobaeus Operation

Dr. Pardo Mêo recently reported before the Sociedade de Medicina e Cirurgia of Campinas, State of São Paulo, a case in which he used the Jacobaeus method of cauterizing pleural adhesions as auxiliary to artificial pneumothorax in pulmonary tuberculosis. The results of collapse therapy depend largely on the presence or absence of pleural adhesions. Gravesen was able to observe, over periods varying from three to thirteen years after the operation was performed, a large number of patients in whom artificial pneumothorax had been used as treatment of pulmonary tuberculosis. Gravesen observed that complete pneumothorax in the absence of pleural adhesions gave recovery in 77 per cent of the cases. This proportion diminished to 33 per cent in cases of complete pneumothorax in which there were circumscribed adhesions, and to 11 per cent in cases of incomplete pneumothorax performed in patients with broad pleural adhesions. In the Jacobaeus operation, the pleural adhesions may be resected without opening the thorax. The principle of the technic is based on the performance of two punctures, one of which is made with a straight trocar which permits the inspection of the pleural adhesions, through a pleuroscope. The other puncture is made with a flexible catheter through which the wire of the galvanocautery is passed. The adhesions are resected by cauterization under visual inspection through the pleuroscope. After the resection of the adhesions, the complete collapse of the lung under the action of the injected air is possible. The speaker presented before the audience a patient in whom a cavity in the upper extremity of the lung appeared in the roentgenogram greater after the performance of pneumothorax than before. This was due to the presence of broad adhesions from the lower to the upper part of the lung, which prevented the collapse and consequently the closure of the cavity. In the roentgenogram the adhesions looked like broad fibrous cords. The intrathoracic resection of the adhesions by the Jacobaeus method caused the gradual disappearance of the cavity and complete collapse of the lung in about four months. In the speaker's case, roentgenograms in series were taken so that the evolution and the regression of the disease could be observed. The speaker believes that his case is the first case of the Jacobaeus operation done in Brazil.

CAPE TOWN

(From Our Regular Correspondent)

Sept. 4, 1931.

The Stamina of White Persons Born in South Africa

Correspondence has appeared in the press concerning the stamina of Europeans born in this country. It is alleged that third generation South Africans are inferior in stamina to newcomers and that the best stocks are rapidly dying out. There is not sufficient evidence to enable an impartial critic to come to any worth-while conclusion. The only statistics of any real value are the earlier records of the medical inspection of schools in the Transvaal, and the trial survey conducted many years ago by Dr. Arnold when medical officer of health for the Transvaal. A report compiled in 1915 from data furnished by the examination of thousands of males between the ages of 18 and 45 shows that there is a high percentage of physical defectiveness among male Europeans. These data are not tabulated according to whether the examinees were native born or new comers. There are a few careful compilations, which seem to show that native born children of the third generation are physically inferior, especially in motor coordination, to first and second generation South African children, but they deal with too few individuals to be of real scientific value. Some years ago Dr. Macfarlane of Basutoland commented on the degeneracy he had observed in old pioneer families and suggested that the actinic light might have something to do with the deterioration noticeable among high veld children where the temperature and humidity are not much greater than in the coastal belt. Another suggestion is that native born South African white persons subsist largely on an unbalanced diet, in which carbohydrates predominate. It would be interesting to take a nonselected group of native born South Africans and compare them carefully with a nonselected group of first generation South Africans or with a group of immigrants. An investigation on these lines was undertaken by one of our universities. Unfortunately it has followed rather barren, anthropometric lines. None of the persons appear to have been properly examined with a view to discovering physical defects that might have accounted for fatigue.

THE HEALTH OF KENYA CHILDREN

Dr. Hargreaves, in his report on the health of Kenya school children, finds that with one exception Kenya European children surpass English children not only in weight but also in height. He remarks: "Climatic conditions in this country tend to produce a heavier and taller child than is usually met with in England." There is no warrant whatever for this assumption that "climatic conditions" have anything to do with this increase in bulk; the subject is still much too shrouded in mystery for any one to be dogmatic on the point, but plant experiment certainly seems to point to other factors, especially nutritional factors, as causing increasing bulk in first and second generation offspring. This bulkiness is particularly noticeable in seedling oxalis, grown from Brazilian seeds. Oxalis is a well acclimatized genus in South Africa, where about 200 different species are found, and the Brazilian types easily establish themselves; but they tend to bulk in the first generation and toward sterility in the third and subsequent generations. In the Transvaal there is evidence that while native born first generation boys are definitely heavier for their age than European children in the same age group, second and third generation native born are underweight on the Philadelphia scale. Hargreaves is definitely of opinion that "Kenya children of all ages are just as bright and receptive as English children of equal standing" but adds: "It is true that the average age of a class here is much higher than it should be, but this is explained by the fact that so many children start school at a late age." These statements do not contribute much light to the discussion.

Interesting data on this question should be obtained when the commission on poor whites reports. This commission has now been at work for three years and has carefully examined thousands of poor white children. The economic and psychologic sections of the report, which is now being prepared, are likely to be interesting, as the experts who have had charge of these aspects are well known for their scientific outlook and their careful methods of inquiry.

The Medical Congress

The twenty-fifth medical congress, and the fourth held under the auspices of the Medical Association of South Africa, opens next week at Johannesburg under the presidency of Dr. Francis Napier. It is the fourth congress to be held at Johannesburg, the first having been held there in 1898, when the Transvaal was still a land of adventure, unrest and plenty of money. These are times of depression, and it is unlikely that the entertainment offered to the delegates will be as sumptuous as then, when, it is told, Johannesburg hospitality went to the length of organizing a little stock exchange boom for the visitors. In those early days romance, in some form, clustered round every medical congress. This year's congress will be as sober and staid as its predecessor. The program appears overloaded with good things. The president, Dr. Napier, is one of the oldest and most respected physicians in this country; he is an ophthalmic surgeon and one of the first consultant specialists in the Transvaal. The local university will confer the honorary degree of LL.D. on him and on Dr. Orenstein, who is the president of the Medical Association of South Africa and a graduate of Columbia University.

Pneumonia Among Mine Workers

In medical circles on the Rand there are conflicting views on the subject of pneumonia among mine workers, which disease is economically one of the worst on the Reef, and the various mines are much interested in its prevention. For years a system of prophylactic vaccination has been followed, but now it is alleged to be of little value. Vaccination was almost universal on the Rand from 1917 to 1927, but today it is no longer so general, as many mine medical officers believe that vaccine prophylaxis is not a protection against the disease. Sir Spencer Lister, who introduced and perfected the pneumococcus vaccine on the Rand, still believes that the results do not warrant that view. Much of the information about the incidence of pneumonia is of small value because there are some discrepancies in diagnosis, and no classification has been generally accepted. It is impossible to make out from the returns what is the incidence of influenzal bronchopneumonia compared with lobar pneumonia. The theory that pneumonia has changed its character on the Reef during the last ten years is one that seems to be popular, but there is no evidence in favor of it. That there is a variable mutability in the pneumococcus is of course known, but the extent of this variability, and its clinical significance, are matters about which far too little is known. An interesting fact is that although the incidence of the disease among mine natives appears to be high, the case mortality is decidedly low. This raises the suspicion that many cases of pneumonia are not really pneumonia but acute bronchitis. On the Rand the case mortality is 11; in Europe and America it is at least double that figure for patients of the same age as the average mine operative. In a recent number of the medical journal are reports of the animated discussions on pneumonia that have taken place at the meetings of the Mine Medical Officers Association.

American Degrees and Diplomas

The South African Medical Council has now gazetted regulations under which certain American degrees and diplomas are registrable. The anomaly that some degrees were registrable and some not was pointed out months ago, and the Council at once set about to rectify it. It now accepts also the certificate of the state board of examiners. Continental degrees also are registrable. Registration of these degrees, however, does not always or necessarily carry with it the right to practice medicine in the union. Such right is granted only when the holder is by reason of his medical degree permitted to practice in the country of origin of the degree and where such country gives reciprocity with the union. Formerly men who held a degree of M.D. of some American or continental university which did not entitle them to practice in this country were admitted to our register on their English or Scottish diplomas, but were not allowed to register their additional degrees. Now this bar has been removed, and a graduate may register his degree even when such degree does not, by itself, give him the right to practice here.

Marriages

Paul Budd Magnuson, Chicago, to Miss Laura Chandler Thompson of Lake Forest, Ill., in Barrington, September 26.

Frederick W. Kerr, Jr., Staten Island, N. Y., to Miss Dorothy Faunce of Haddon Heights, N. J., July 18.

Walter D. Berry, East Longmeadow, Mass., to Miss Maude A. Gilchrist-Stacy of Springfield, June 1.

John Franklin Woodward, Jr., to Miss Isobel Robertson Carrington, both of New York, September 26.

Comer Roger Youmans, Lumber City, Ga., to Miss Clarice Catherine Clark of Jacksonville, August 13.

Lawrence W. Weller, Youngstown, Ohio, to Miss Florence M. Needham of Pittsburgh, August 1.

Lee Wallace Peacock, Detroit, to Miss Lou Marie Ceglark in Bay City, Mich., September 24.

Alfred Giles Neill, Melcroft, Pa., to Miss Mabel Lessenberry of Milan, Tenn., August 12.

Samuel Alexander Vest, Baltimore, to Miss Elise Thompson in Graham, N. C., August 1.

Nathan J. Braverman to Miss Beatrice E. Hirschfield, both of Duluth, Minn., June 30.

Glenway Rothenmaier, Milwaukee, to Miss Alice Thompson of Madison, Wis., August 8.

John Winston Fowlkes to Miss Lucy Burwell Allen, both of New York, September 26.

Fred Y. Ketner, Concord, N. C., to Miss Winnie D. Stokes of Newsom, August 3.

Alton B. Simonson, Elsie, Mich., to Miss Achsah Loynes of Chapin, in August.

Deaths

Samuel Willis Prowse, Winnipeg, Man., Canada; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1896; F.R.C.S., Edinburgh, 1898; dean and professor of otology and laryngology, University of Manitoba Faculty of Medicine; member of the American College of Surgeons; aged 61; on the staff of the Winnipeg General Hospital, where he died, August 1, of heart disease.

Lorenzo Boorse ⊕ Milwaukee; Rush Medical College, Chicago, 1881; member of the Central States Pediatric Society; emeritus professor of pediatrics, Marquette University School of Medicine; served during the World War; on the staff of the Milwaukee County General Hospital; aged 72; died, September 12, of arteriosclerosis and coronary thrombosis.

Weston Dodson Bayley ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1888; formerly professor of neurology at his alma mater; aged 64; on the staffs of St. Luke's Hospital and the Pennsylvania Hospital, where he died, September 14, of heart disease, while under an anesthetic given for the extraction of teeth.

Alexander Jay Braden, Duluth, Minn.; University of Michigan Medical School, Ann Arbor, 1888; member of the Minnesota State Medical Association and the American College of Surgeons; formerly on the staffs of St. Luke's Hospital and St. Mary's Hospital; aged 70; died, September 9, of heart disease and pulmonary edema.

George Washington Campbell, Flora, Ill.; University of Tennessee College of Medicine, Memphis, 1909; member of the Illinois State Medical Society; bank president, president of the school board and formerly state senator; aged 45; died, May 9, at the Olney (Ill.) Sanitarium, following an operation for gallstones.

William W. Smithson ⊕ Jackson, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; served during the World War; at one time executive secretary of the state board of health; on the staff of the Jackson Infirmary and formerly superintendent of the Mississippi Insane Hospital; aged 57; died, September 9.

William Aaron Ewing ⊕ Dayton, Ohio; Jefferson Medical College of Philadelphia, 1900; member of the American College of Surgeons; past president of the Montgomery County Medical Society; aged 55; visiting surgeon to the Miami Valley Hospital, where he died, September 16, of streptococcic poisoning.

Eugene Jones ⊕ Kensington, Md.; Baltimore Medical College, 1896; past president of the Montgomery County Medical Society; formerly member of the state board of health; state senator, 1914-1918, 1922-1930; aged 58; died, September 22, in the Garfield Hospital, Washington, D. C., of diabetes mellitus.

Arthur Gustavus Bosler ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; served during the World War; aged 62; on the staffs of the Lakeside Hospital and the Englewood Hospital, where he died, September 18, of cerebral hemorrhage.

Carl William Smith, Princeton, W. Va.; University of Tennessee College of Medicine, Memphis, 1919; member of the West Virginia State Medical Association; medical superintendent of the Mercer Memorial Hospital; aged 34; died, September 1, in a hospital at Asheville, N. C., of pneumonia.

Henry Tecle Nicolle ⊕ Baton Rouge, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1908; served during the World War; on the staff of Our Lady of the Lake Sanitarium; aged 49; died suddenly, August 3, of cerebral hemorrhage.

George Alexander Budd, Frankfort, Ky.; Western Reserve University Medical Department, Cleveland, 1893; member of the Kentucky State Medical Association; past president of the Franklin County Medical Society; aged 60; died, September 15, of angina pectoris.

Eugene Hilliard Morgan, Granbury, Texas; Southwestern University Medical College, Dallas, 1904; Medical Department of the Tulane University of Louisiana, New Orleans, 1906; aged 65; died, September 9, at Fort Worth, of carcinoma of the pancreas.

Thomas Farley Joseph Hanlon, New York; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during the World War; aged 40; died, September 16, at his summer residence in West Hampton Beach, L. I., of cerebral hemorrhage.

Harry Elliott ⊕ Brazil, Ind.; Medical College of Indiana, Indianapolis, 1904; member of the American College of Surgeons; served during the World War; chief of staff and surgeon to the Clay County Hospital; aged 52; died, September 24.

Edmund Dempster Brant, Canton, Ohio; Bellevue Hospital Medical College, New York, 1891; member of the Ohio State Medical Association; aged 72; died, September 24, of fracture of the hip and arteriosclerosis.

Stephen Y. Howell, Buffalo; Medical Department of Columbia College, New York, 1880; Hahnemann Medical College of Philadelphia, 1882; aged 77; died, September 24, of angina pectoris and arteriosclerosis.

James Edward Taylor, Redding, Calif.; Medical Department of the University of California, 1899; member of the California Medical Association; aged 58; died, August 3, of angina pectoris and arteriosclerosis.

William Allen Dixon, Decatur, Ill.; Kentucky School of Medicine, Louisville, 1892; Illinois Medical College, Chicago, 1895; formerly member of the board of health; aged 65; died, September 11, of diabetes mellitus.

Vincenzo Guiseppe Fabiani, Philadelphia; Royal University of Naples Faculty of Medicine and Surgery, Naples, Italy, 1889; aged 67; died, September 2, in St. Agnes' Hospital, of a self-inflicted bullet wound.

Frederick Welton Brownfield ⊕ Golden, Colo.; St. Louis College of Physicians and Surgeons, 1919; aged 45; died, June 16, in St. Anthony's Hospital, Denver, of chronic cholecystitis and appendicitis.

Theodore Harvey Kellogg ⊕ New York; Bellevue Hospital Medical College, New York, 1865; member of the American Psychiatric Association; aged 90; died, September 20, of arteriosclerosis.

Mark Alward, Portland, Maine; University of Buffalo School of Medicine, 1887; member of the Maine Medical Association; aged 78; died, August 17, of cerebral hemorrhage and arteriosclerosis.

William Ross Taylor, Morral, Ohio; College of Physicians and Surgeons, Baltimore, 1884; member of the Ohio State Medical Association; aged 81; died, September 18, of organic heart disease.

Francis Marion Ingalls ⊕ Highland Park, Ill.; Rush Medical College, Chicago, 1888; aged 71; on the staff of the Highland Park Hospital, where he died, September 22, of cholecystitis.

William Warren Furber, Cottage Grove, Minn.; Rush Medical College, Chicago, 1878; also a lawyer and justice of the peace; aged 75; died, September 8, in St. Luke's Hospital, St. Paul.

Leonard Cassell Berry, Lexington, Ky.; University of Louisville School of Medicine, 1900; aged 56; died, September 22, in a local hospital, of cerebral hemorrhage and arteriosclerosis.

George W. Rezanka ⊕ Chicago; Rush Medical College, Chicago, 1893; on the staff of St. Anthony's Hospital; aged 62; died, August 21, in his home at Oak Park, Ill., of angina pectoris.

George Eckles Neal, Manchester, Ohio; Cincinnati College of Medicine and Surgery, 1900; member of the Ohio State Medical Association; aged 61; died, September 19, of pneumonia

Henry Baldwin Lloyd, Evanston, Ill.; Tennessee Medical College, Knoxville, 1899; aged 61; died, August 28, in the Evanston Hospital, of mesenteric thrombosis and peritonitis.

William J. Whalen, Paterson, N. J.; University College of Medicine, Richmond, 1909; served during the World War; aged 46; died, September 15, of acute cardiac dilatation.

Joseph Benjamin Goldberg, Chicago; Rush Medical College, Chicago, 1902; on the staff of the Frances E. Willard Hospital; aged 55; died, September 25, of carcinoma.

Levi J. Stump, Pocahontas, Va.; Medical College of Virginia, Richmond, 1883; member of the Medical Society of Virginia; aged 71; died, August 31, of myocarditis.

William Joseph Morlan Smiser, Skylight, Ky.; Kentucky School of Medicine, Louisville, 1884; aged 74; died, September 3, of organic heart lesion and pulmonary edema.

Michael S. Creamer, Los Angeles; Kentucky School of Medicine, Louisville, 1906; aged 54; died, August 12, of acute pericarditis and sarcoma of the mediastinum.

Max Fischman, Yonkers, N. Y.; University and Bellevue Hospital Medical College, New York, 1908; aged 46; died, September 23, of a self-inflicted bullet wound.

John Jay Still, Los Angeles; Bellevue Hospital Medical College, New York, 1885; aged 76; died, August 22, of cerebral hemorrhage and intestinal obstruction.

James H. Bartley, Providence, R. I.; Detroit Medical College, 1882; member of the Rhode Island Medical Society; aged 74; died, August 29, of angina pectoris.

Elmer Ellsworth Lytle ⊕ Bothell, Wash.; Rush Medical College, Chicago, 1887; aged 69; died, August 17, in Seattle, of cerebral thrombosis and hypertension.

Franklin Henry Clark, Cleveland; Medical Department of the University of the City of New York, 1879; aged 73; died, September 10, of cerebral hemorrhage.

Mary Ellen Bryan, Ogdensburg, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1887; aged 76; died, August 26, of cerebral hemorrhage.

Nathan Weidenthal, East Cleveland, Ohio; University of Wooster Medical Department, Cleveland, 1878; aged 76; died, September 7, of arteriosclerosis.

Charles Wesley Carr, Denison, Iowa; Rush Medical College, Chicago, 1890; bank president; aged 66; died suddenly, in September, of heart disease.

Adam Adolf Haas ⊕ San Francisco; Chicago College of Medicine and Surgery, 1914; aged 58; died, July 26, of coronary sclerosis and occlusion.

Clarence Everett Cobb, Panama, N. Y.; Jefferson Medical College of Philadelphia, 1916; aged 50; died, September 4, of pulmonary tuberculosis.

Charles T. McMurtrey, Kidder, Mo.; Northwestern Medical College, St. Joseph, 1894; bank president; aged 60; died, August 21, of carcinoma.

Rodolph Rutledge, Springfield, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 78; died, August 28, in Springboro, of angina pectoris.

Ezra Theodore Campbell, Welaka, Fla.; Columbian University Medical Department, Washington, D. C., 1888; aged 67; died, September 21.

Joseph L. Davis, Winchester, Tenn.; University of Nashville Medical Department, 1890; aged 71; died, September 9, of cerebral hemorrhage.

John C. Cain, Miami, Ind.; Medical College of Indiana, Indianapolis, 1880; aged 76; died, September 16, of carcinoma of the urinary bladder.

Felix Charles Guilbeau, Sunset, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1904; aged 53; died, July 13.

John Snook, Berkeley, Calif.; California Medical College, 1886; University of Illinois College of Medicine, Chicago, 1904; aged 70; died, June 16.

Philip B. Swearingen ⊕ Tacoma, Wash.; Missouri Medical College, St. Louis, 1887; aged 68; died, August 12, of cerebral hemorrhage.

Walter John Kidd, Burlington, Ind.; Indiana Eclectic Medical College, Indianapolis, 1885; aged 83; died, September 5, of diabetes mellitus.

James R. Kenton ⊕ Raymond, Ill.; Beaumont Hospital Medical College, St. Louis, 1899; aged 61; died, September 22, of carcinoma.

Charles William Anderson, Frankfort, Ky.; Louisville National Medical College, 1902; aged 67; died, August 25, of prostatic disease.

Charles Neree Beauchemin, Yamachiche, Que., Canada; Laval University Faculty of Medicine, Quebec, 1874; aged 81; died, June 29.

Reuben Adcox, St. Louis; American Medical College, St. Louis, 1910; aged 69; died, September 30, of a self-inflicted bullet wound.

A. M. Speer, Macon, Ga.; University of Georgia Medical Department, Augusta, 1884; aged 69; died, June 24, of myocarditis.

Burwell Atkinson, Waverly, Ga.; Atlanta Medical College, 1876; formerly state senator; aged 83; died, September 22, of senility.

John R. Lazenby, Lawrenceburg, Ind. (licensed, Indiana, 1897); aged 87; died, August 17, of arteriosclerosis.

Benjamin Y. Boyd, Dallas, Texas; Medical College of Ohio, Cincinnati, 1886; aged 72; died, July 21.

Thomas C. Kirven, Jackson, Ala.; Louisville (Ky.) Medical College, 1893; aged 72; died, August 10.

William C. Hite, Nashville, Tenn. (licensed, Tennessee, 1891); aged 80; died, July 26.

Bureau of Investigation

HORACE IPPELTHWAITE, ALIAS DANIEL DAVENPORT, M.D., PH.D., F.Z.S.

A Picturesque Impostor Who Works with Motion Picture Films and Fictitious Degrees

A few months ago, Chicago newspapers carried advertisements of a motion picture entitled, "Jungle Hazards." It was sensationally described as the "Wildest Wild Animal Motion Picture Ever Filmed." It was said to depict "the Love Life of Cannibals" and it was claimed that in its making, fifteen human lives had been lost! The film was alleged to have been made by "Dr. Daniel Davenport, M.D., Ph.D., F.Z.S.," and was described as "The first full-length motion picture to be made in West Africa." "Davenport" was also featured in the newspaper advertisements as "appearing in person" at the showing of the film. He was characterized in the advertisements as a "Famous Explorer, Adventurer."

At the showing of the film, there was sold an elaborate "Souvenir Booklet" entitled, "Jungle Hazards" and described as "The key to the first complete film taken in West Africa" and as "a complete description of the tragic expedition survived only by Dr. Daniel Davenport." As a final artistic touch, it was "Personally Autographed by the Explorer." Each page of the booklet measured about eight inches by ten inches, and one entire page was taken up by a large size photograph of Daniel Davenport, showing the gentleman rigged out in the most approved African-explorer style—pith helmet, puggree, briar pipe, etc.

At this point, it is necessary to mention that the name, Daniel Davenport, is apparently an assumed one. The Chicago Better Business Bureau, at the time that Davenport was holding forth in Chicago, got in touch with Davenport and asked him to explain certain claims that he was making. The man had declared that he was a graduate of McGill University, class of 1913, but the Chicago Better Business Bureau told him that the American Medical Association had reported that no man of this name was a graduate of McGill University, either in 1913 or any other date. "Davenport" is then said to have told the Bureau that his real name was Horace Ippelthwaite. Further correspondence of the Bureau of Investigation of the American Medical Association, with the Dean of McGill University Faculty of Medicine brought out the fact that no man by the name of Horace Ippelthwaite was ever a student or a graduate of McGill University.

The "Souvenir Booklet" contained a foreword under the heading, "The Lone Survivor," purporting to have been written by "Sydney N. Lord, M.D., University of Toronto." Dr. Sydney N. Lord is a reputable physician and a graduate of the Ohio State University College of Medicine, with a Bachelor of Science degree from the University of Toronto. He states that he did not write the matter that appears under his name and has not the slightest knowledge of the truth of any of the statements contained in his supposed foreword. Dr. Lord had met Davenport and his experience with the man—involving a loss of both confidence and money—need not be gone into in detail at this time. The foreword in question read in part:

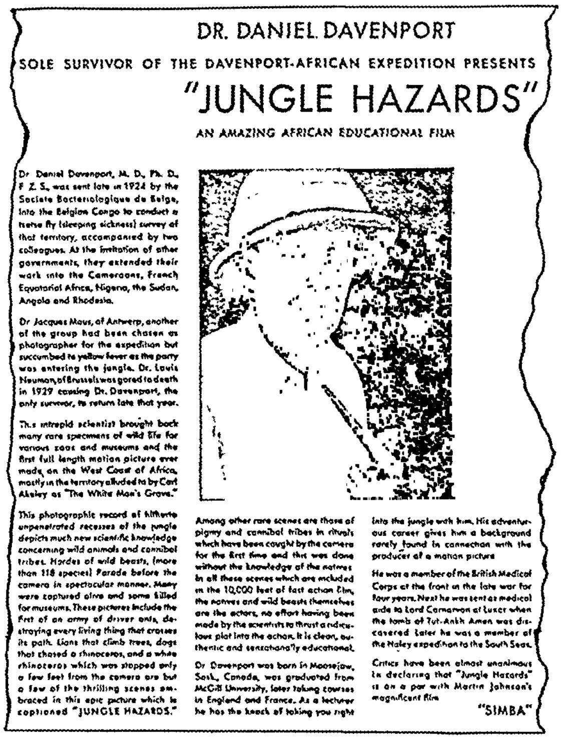
> "Dr. Daniel Davenport, M.D., Ph.D., F.Z.S., was born in Moosejaw, Saskatchewan, Canada, in 1889. He was graduated from McGill University, later taking courses at Oxford, The Sorbonne, Paris, and Faculte de Bordeaux.
>
> "With the outbreak of hostilities in the great war, Dr. Davenport immediately was commissioned a lieutenant in the Royal Medical Corps and served more than four years at the front and nearby base hospitals."

In order to check up on these claims, the Bureau of Investigation wrote to a physician in Moose Jaw, who has lived in that town for nearly thirty years, and also wrote to the Police Department of the same town. Neither the physician nor the Chief of Police was able to identify either Daniel Davenport or Horace Ippelthwaite as a native of Moose Jaw, although the Chief of Police stated that a man answering Davenport's description had come to Moose Jaw about two years previously, at which time he had rented a hall and, under the name "Dr. Davenport," gave "some form of a lecture."

In order to check on the claim that Davenport had held a commission as lieutenant in the Royal Medical Corps, a letter was written to the Royal Army Medical Corps of the British War Office in London by the Bureau of Investigation. This brought the information that they had no record of either Daniel Davenport or Horace Ippelthwaite as having been a member of His Majesty's forces. A further claim made in the Davenport advertising was:

> "Late in 1924, Dr. Louis Neuman, famous Belgian bacteriologist, was chosen by the Societe Bacteriologique de Belge [*sic!*] to conduct a survey of tsetse fly infected sections of the Congo in an effort to reduce the ravages of the dreaded sleeping sickness. He chose as his aides Drs. Jacques Maus, of Antwerp, and Daniel Davenport."

The Bureau of Investigation wrote to the well-known Belgian physician, Dr. Jules Voncken of the *Archives Medicales Belges.* Dr. Voncken replied that he was unable to find any information in relation to the alleged expedition by the "famous Belgian bacteriologist, Dr. Louis Neuman," nor was he able to discover that there was any Society of Bacteriology of Belgium (Société Bactériologie de Belgique).



DR. DANIEL DAVENPORT

SOLE SURVIVOR OF THE DAVENPORT-AFRICAN EXPEDITION PRESENTS

"JUNGLE HAZARDS"

AN AMAZING AFRICAN EDUCATIONAL FILM

Dr. Daniel Davenport, M. D., Ph. D., F. Z. S., was sent late in 1924 by the Societe Bacteriologique de Belge, into the Belgian Congo to conduct a tsetse fly (sleeping sickness) survey of that territory, accompanied by two colleagues. At the invitation of other governments, they extended their work into the Cameroons, French Equatorial Africa, Nigeria, the Sudan, Angola and Rhodesia.

Dr Jacques Maus, of Antwerp, another of the group had been chosen as photographer for the expedition but succumbed to yellow fever as the party was entering the jungle. Dr. Louis Neuman, of Brussels was gored to death in 1929 causing Dr. Davenport, the only survivor, to return late that year.

This intrepid scientist brought back many rare specimens of wild life for various zoos and museums and the first full length motion picture ever made, on the West Coast of Africa, mostly in the territory alluded to by Carl Akeley as "The White Man's Grave."

This photographic record of hitherto unpenetrated recesses of the jungle depicts much new scientific knowledge concerning wild animals and cannibal tribes. Hordes of wild beasts, (more than 118 species) Parade before the camera in spectacular manner. Many were captured alive and some killed for museums. These pictures include the first of an army of driver ants, destroying every living thing that crosses its path. Lions that climb trees, dogs that chased a rhinoceros, and a white rhinoceros which was stopped only a few feet from the camera are but a few of the thrilling scenes embraced in this epic picture which is captioned "JUNGLE HAZARDS."

Among other rare scenes are those of pigmy and cannibal tribes in rituals which have been caught by the camera for the first time and this was done without the knowledge of the natives. In all these scenes which are included in the 10,000 feet of fast action film, the natives and wild beasts themselves are the actors, no effort having been made by the scientists to thrust a ridiculous plot into the action. It is clean, authentic and sensationally educational.

Dr Davenport was born in Moosejaw, Sask., Canada, was graduated from McGill University, later taking courses in England and France. As a lecturer he has the knack of taking you right into the jungle with him. His adventurous career gives him a background rarely found in connection with the producer of a motion picture.

He was a member of the British Medical Corps at the front in the late war for four years. Next he was sent as medical aide to Lord Carnarvon at Luxor when the tomb of Tut-Ankh Amen was discovered. Later he was a member of the Haley expedition to the South Seas.

Critics have been almost unanimous in declaring that "Jungle Hazards" is on a par with Martin Johnson's magnificent film

"SIMBA"

Photographic reproduction greatly reduced (the original measured about 8 inches by 10 inches) of an advertising circular featuring Davenport and "Jungle Hazards."

In some of the other Davenport advertising, it was claimed that the film, "Jungle Hazards," had been endorsed (1) by the Maryland Academy of Sciences, (2) by the Western Reserve University, and (3) by the Boy Scouts of America. Letters addressed to each of these institutions by the Bureau of Investigation brought replies, in each case, that no such endorsements had been given.

Intelligent readers of newspapers must long since have been convinced that many of the so-called reviews of motion pictures are hopelessly uncritical. This conviction is likely to be further strengthened by reading what, in the Davenport advertising, are alleged to be some of the reviews of Davenport's film. Under the heading, "What the Critics Say of 'Jungle Hazards,'" we read:

> "No hokum, no theme song, no wishy-washy Hollywood fakery, just an honest-to-goodness motion picture made by a trio of brave men."—Washington (D. C.) *Post.*
>
> "A powerful reproduction of a tragic expedition. Quite the most realistic motion picture in years. Don't miss this one."—Toronto (Canada) *Star.*
>
> "Dr. Davenport has brought us the greatest substitute yet for an actual trip through the jungles of Equatorial West Africa.

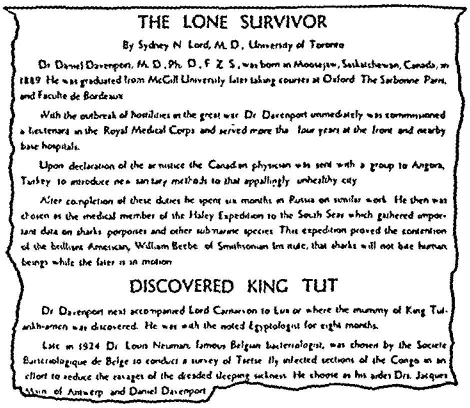
An amazing film and a remarkably fine lecturer."—Baltimore (Md.) *Sun.*

" 'Jungle Hazards,' for sheer reality and sensational interest is among the three best pictures reviewed by this writer in the past year. Dr. Davenport's monologue puts it in a class even above this."—Columbus (Ohio) *Press.*

"Truth is stranger than fiction and remarkably so in Dr. Davenport's extraordinary picture, 'Jungle Hazards,' which brings scenes where the unexpected abounds and from which a wealth of knowledge of other worlds may be gleaned."—Pittsburgh (Pa.) *Press.*

" 'Jungle Hazards,' though it crowds the screen with animals comes rather under the head of adventure and for its thrills of stark reality and danger compares with that heroic picture, 'The Ascent of Mount Everest.' "—Rochester (N. Y.) *Times-Union.*

It also appears from investigation that a year and a half ago, Davenport was working a similar scheme in Boston. Papers in that city carried an advertisement of a motion picture entitled, "Jango, with Dr. Davenport and Cannibals in Person." As in the Chicago case, a "Souvenir Booklet" was sold, the title in Boston being "Jango—Exposing the Terrors of Africa in the Land of Trader Horn." This booklet stated that the "Davenport-Quigley Expeditions, Inc., presented 'Jango' " as "a Photoplay Representing Five Years of Travel and Research on the West Coast of Africa." According to the same booklet Dr. Davenport, while in Africa making the film, was bitten on the shin by a cobra and was incapacitated for about six weeks. During most of this time, the story continued, he was carried by two faithful cannibal tribesmen—Massamba and Mb'wanga. The Souvenir Booklet contained pictures of these two "cannibals" and stated that Davenport, as a reward for the faithfulness of these two human flesh-eaters, had brought them to the United States.



THE LONE SURVIVOR

By Sydney N Lord, M. D., University of Toronto

Dr Daniel Davenport, M. D., Ph. D., F. Z. S., was born in Moosejaw, Saskatchewan, Canada, in 1889 He was graduated from McGill University later taking courses at Oxford The Sorbonne Paris, and Faculte de Bordeaux

With the outbreak of hostilities in the great war Dr Davenport immediately was commissioned a lieutenant in the Royal Medical Corps and served more than four years at the front and nearby base hospitals.

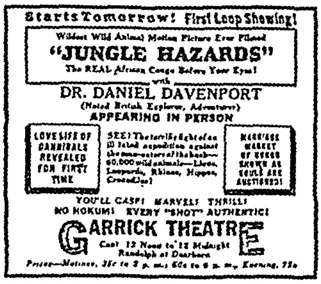
Upon declaration of the armistice the Canadian physician was sent with a group to Angora, Turkey to introduce new sanitary methods to that appallingly unhealthy city

After completion of these duties he spent six months in Russia on similar work He then was chosen as the medical member of the Haley Expedition to the South Seas which gathered important data on sharks porpoises and other submarine species This expedition proved the contention of the brilliant American, William Beebe of Smithsonian Institute, that sharks will not bite human beings while the latter is in motion

DISCOVERED KING TUT

Dr Davenport next accompanied Lord Carnarvon to Luxor where the mummy of King Tut-ankh-amen was discovered. He was with the noted Egyptologist for eight months.

Late in 1924 Dr Louis Neuman, famous Belgian bacteriologist, was chosen by the Societe Bacteriologique de Belge to conduct a survey of Tsetse fly infected sections of the Congo in an effort to reduce the ravages of the dreaded sleeping sickness He choose as his aides Drs. Jacques Maus of Antwerp and Daniel Davenport



Starts Tomorrow! First Loop Showing!

Wildest Wild Animal Motion Picture Ever Filmed

"JUNGLE HAZARDS"

The REAL African Congo Before Your Eyes!

with

DR. DANIEL DAVENPORT

(Noted British Explorer, Adventurer)

APPEARING IN PERSON

LOVE LIFE OF CANNIBALS REVEALED FOR FIRST TIME

SEE! The terrific fight of an ill fated expedition against the man-eaters of the bush—60,000 wild animals—Lions, Leopards, Rhinos, Hippos, Crocodiles!

MARRIAGE MARKET OF [illegible] SHOWN AS SOULS ARE AUCTIONED!

YOU'LL GASP! MARVEL! THRILL!

NO HOKUM! EVERY "SHOT" AUTHENTIC!

GARRICK THEATRE

Cont. 12 Noon to 12 Midnight

Randolph at Dearborn

Prices—Matinee, 35c to 2 p. m.; 50c to 6 p. m.; Evening, 75c

Above: Photographic reproduction (greatly reduced) of a part of the foreword in the "Souvenir Booklet" sold during Davenport's appearance in Chicago. While credited to Dr. Sydney N. Lord, Dr. Lord states that he did not write it and has not the slightest knowledge of the truth of any of the statements contained in it

Below: Reduced facsimile of one of numerous advertisements appearing in Chicago papers at the time of Davenport's visit to that city.

The Boston Better Business Bureau in its Bulletin of March 26, 1930, exposed the spuriousness of this motion picture scheme and stated that on the last day of the showing of Davenport's picture in Boston, the man who appeared in person as "Malamba, the Cannibal," brought suit against the Davenport-Quigley company for back wages. The "cannibal" is said to have stated that he was, in fact, a janitor from Harlem, New York, where he had met Davenport; and that the motion picture itself was not produced in the African jungle. The courts, it seems, fined the Davenport-Quigley company $50 whereupon the Harlem janitor filed a civil suit for collection of about $900 wages, which he claimed were due him. The janitor was further said to have declared that the film was manufactured largely from lengths of various jungle films, combined with pictures of a small animal circus, which was set up on location in the Bronx!

The Attorney General's office of New York State in December, 1929, is reported to have started an action against the Davenport-Quigley Expeditions, Inc., in connection with the sale of stock and for the purpose of preventing further subscriptions. It was stated, according to the Boston Better Business Bureau, that although seventy-five thousand shares of stock were said to have been sold, the company's assets were found to consist of the film called "Jango" and $20 in cash.

The "Jango" souvenir booklet was much more profusely illustrated than the "Jungle Hazards" booklet. In both of them Davenport's alleged associates in the Belgian-Congo expedition—Drs. Louis Neumann and Jacques Maus—were said to have died; the latter of yellow fever at the outset of the expedition, while Dr. Neumann was gored to death by a rhinoceros in 1929, "causing Dr. Davenport, the only survivor, to return late that year." The "Jango" booklet, possibly with the idea of lending an air of verisimilitude to an otherwise bald and unconvincing tale, shows a "rhino in full charge." The inference is that Davenport took the photograph. A national authority on these things, however, declares that the picture is a well-known one, taken some years ago by the English exporer and artist-lecturer, Major Arthur Radclyffe Dugmore. According to the same authority, some of the other "wild animal" pictures appearing in the "Jango" booklet were actually taken in New York State. The "Jango" booklet also featured a full-page photographic reproduction of a letter on the stationery of the Belgian Consulate in New York, addressed to Davenport and puffing his film. It was signed by a person calling himself "Acting Chancellor" of the Consulate. The facts, according to the vice-consul for Belgium, are that the person who wrote the letter was not Acting Chancellor, had no authority to write or sign any letters in the Belgian Consulate of New York, and lost his position following the disclosure by the officials of what he had done!

Ippelthwaite, alias Davenport, is probably still working his scheme in some parts of the United States, either under one of these names or some other. If he is, and he is still attempting to drag down the good name of medicine by claiming that he is a physician, it is to be hoped that the local medical profession will expose the pretensions of this impostor.

Correspondence

THE SOCIAL HISTORY OF THE PATIENT

To the Editor:—The clinical biography of ward patients in hospitals is normally constituted of three parts: (*a*) the purely medical and nursing bedside record, which is an historical outline in syllogistic order of the progress of the malady from the pathologic point of view, in accordance with the observations of the patient and those who take care of him; (*b*) the laboratory record, which provides clues to the solution of the problem which only the exact sciences can furnish, and (*c*) the social record, which provides the social background for the scientific picture and tells of factors which do not lend themselves to exact scientific treatment but which in a real way influence the origin, clinical course and outcome of the disease. That these three essential parts of the patient's record overlap and may not be considered independently by the medical scientist on whom the solution of the medical problem depends, or for that matter by the social worker, is one of the great discoveries (or is it a rediscovery?) of modern medicine. In actual hospital practice, however, does the physician inform himself (and others) of social factors influencing the patient's illness as an aid to the exercise of his diagnostic and therapeutic skill? Is it generally recognized that social treatment and medical treatment are interdependent and that one reinforces the other in the struggle that the patient is making for life?

In how many hospitals are the social and medical histories kept together and brought to the notice of the visiting and resident medical staff when the patient is submitted to them by the governing authorities of the hospital (and by the community) for study? How close is the cooperation between physician and social worker in the management of ward cases? In the operating room, as the patient in his artificially peaceful slumber is wheeled in, unconscious, ready for the specialist to demonstrate his mechanical skill, the doctor will read a summary of the medical history and present it in the form of a problem in pure science. But how often, if ever, does he read out those social facts which had so much to do with the plight of the patient. "Gentlemen," one can almost hear him saying to the assembled students in a sympathetic voice that indicates concern, "this is an unfortunate working man of middle age, the father of five dependent young children whose mother has been broken down by the illness of the patient. We hope that we are doing the right thing by operating in this instance. If he does not survive this operation or if this operation should prove to be unsuccessful. . . ." Among other things the reading of social histories in this manner might have the effect of increased consultation service for the patient, in the anxiety of the specialist to divide and share the responsibility for a surgical operation which, under any circumstances, should always be a matter of grave concern to every one and not only to the patient. Other and equally obvious benefits might come from deeper consideration of social factors.

Or, in the postmortem room where the failures of the medical clinic are examined critically—again from the mechanical point of view—one can imagine the far reaching effects of a reading of the social history in addition to the cold scientific facts furnished by instruments of precision and the interpretation of the results which they make possible. A sobering experience for the student might be the least that we could expect from his acquaintance with the social background of his interesting "case"!

E. M. Bluestone, M.D.,
Montefiore Hospital for
Chronic Diseases,
New York.

"TRANSMISSION OF TUBERCULOSIS"

To the Editor:—The paper of Dr. J. Arthur Myers (The Journal, August 1) does not bring out any recent facts. It has for years been known that an individual or race free from evidence of having been infected falls ready prey to the infection when it does occur. For this reason every effort is being put forth to protect the child from exposure to massive infection. The students of medicine or nursing who do not react to tuberculin are children so far as tuberculosis is concerned. The mistake made in the cases cited by Dr. Myers was in not applying this knowledge of well established facts. The doctor would not permit a child to be intimately exposed to an open case of tuberculosis. Why, then, permit the exposure of those who are in the child's class?

To treat every case of tuberculosis as dangerously contagious would be an undertaking of a magnitude and futility second only to treating every incipient case in a sanatorium as some experts advocate.

Eli Grimes, M.D., Des Moines, Iowa.

[Note.—The letter of Dr. Grimes was referred to Dr. Myers, who replies:]

To the Editor—Dr. Grimes's statement "The students of medicine or nursing who do not react to tuberculin are children so far as tuberculosis is concerned" is most significant. "Why then permit the exposure of those who are in the child's class?" If he will only carry it a little further and make it apply to all persons who react negatively to tuberculin and still a bit further to apply to everybody, whether children or adults, whether positive or negative reactors to tuberculin, he will be ready to make the same statement as Dr. Allen K. Krause when he said "The only rational attitude is to protect all human beings, of whatever age, against exposure." If he will then shout this from the housetops along with the others who believe with him and will devise means of preventing the spread of tubercle bacilli, he will bring about the most rapid control of tuberculosis that the world has ever experienced.

I agree most heartily with Dr. Grimes except on the point of futility of treating every case of tuberculosis as dangerously contagious. By this I assume that he means every so-called open case. It is an undertaking of great magnitude, and the equipment to put it into practice will require considerable time. The best place to start is in our teaching institutions where the students of nursing and medicine are in need of protection against tuberculosis. To say that it is futile to attempt to treat every open case of tuberculosis as dangerously contagious is merely to repeat what has been said at the inception of every campaign against other contagious diseases.

J. Arthur Myers, M D., Minneapolis.

HEAT PROSTRATION AND DEHYDRATION

To the Editor:—Concerning your pertinent editorial on the importance of water (The Journal, August 15, p. 465), the following case report is suggestive:

W. G. F., a banker, aged 67, height 6 feet 1 inch (185 cm.), weight 207 pounds (94 Kg.), a native of Scotland, ruddy, of vigorous build, with a good family and personal history, collapsed as he was sitting in the barber's chair, August 26.

Southern California was suffering a period of extremely high temperatures and a relatively low degree of humidity. The patient had come up from the beach the night before and had slept little that night on account of the heat. In the morning he drove to Hemet, approximately 40 miles, and spent several hours walking through his orange grove a number of miles in a temperature which must have approximated from 110 to 120 F. He said that he drank approximately five glasses of water during that time. He returned to Riverside soon after noon and collapsed at about 2 p. m.

At the time of his sudden attack of unconsciousness, he had a profuse discharge from the bowels and made an effort to vomit. He was taken to the Community Hospital by ambulance, accompanied by Dr. N. K. Bear. Dr. Bear reports finding him pulseless and practically not breathing. I saw him soon after his arrival, fifteen or twenty minutes after the onset of the attack.

His face and finger nails were cyanotic. He was perspiring profusely and was cold and clammy. He was breathing heavily, he suffered from nausea and his pulse was very feeble, the rate about 50; the first record on the chart is given as 44. The blood pressure was 96 systolic and 60 diastolic. He was sufficiently conscious at this time to answer questions. The heart sounds were feeble and irregular.

The records of dehydration in desert experiences prompted an immediate intravenous injection of dextrose, 1,000 cc. of a 5 per cent solution. He had been given coramine, one ampule, and strychnine, 1/25 grain (2.5 mg.) hypodermically. There was a striking improvement in his condition immediately, seemingly the effect of the filling of the blood vessels. His nausea promptly left him; his pulse took on a comfortable rate and tension. With the same thought of dehydration in mind, I instructed him to take a glass of water every ten minutes. At 4 p. m. the temperature was 98, the pulse 72, respiration 20. By 7 o'clock he had taken by mouth 1,560 cc. of fluid—some was tea and some orange juice—and was manifestly much improved. He continued to take water liberally, until by 7 o'clock the next morning, after seventeen hours, the total intake by mouth was 3,640 cc. This, added to the 1,000 cc. given intravenously, made a total of 4,640 cc. of fluid in seventeen hours, approximately 9 pints. The output of urine during this time totaled 450 cc. The first examination of urine made of the 7 o'clock specimen (August 27) was: specific gravity, 1.035; albumin, 1 plus; sugar, 3.12 per cent; casts, numerous hyaline, frequent fine granular, and occasional coarsely granular, some containing leukocytes. There were 5 or 6 leukocytes and 1 or 2 erythrocytes to the high power field. There were many mucous shreds. Of indican there was a faint trace.

An ice cap was kept on the patient's head for eighteen hours. His blood pressure at 8 a. m., August 27, was 100 systolic and 70 diastolic. He was comfortable, had slept considerably and was ready to take some breakfast, which was light and sugar free. He continued to take fluid in liberal quantities, the record for twenty-four hours—from 7 a. m., August 27, to 8 a. m., August 28, being an intake of 2,900 cc. and an output of 795 cc. He made a rapid recovery and on the morning of the 28th he seemed in practically normal condition and was allowed to leave the hospital, forty-eight hours after admittance.

The urinary picture cleared promptly. By 6:45 that evening, the 27th, the specific gravity was 1.016; albumin, 0; sugar, 0; casts, 0; leukocytes, 0; erythrocytes, 0. It seems likely that the sugar in the first specimen was largely due to the dextrose solution given intravenously.

Does not this case suggest that dehydration is an important factor, if not the all important factor, in heat prostration?

All experience on the desert emphasizes the enormous quantity of fluid taken and the small output of urine. When one is motoring a day on the desert with a temperature upward of 110, with an enormous output of fluid through the skin, both visible and invisible, an intake of 4 quarts of fluid and an output of a pint of urine is a common experience. The low humidity relieves the body of enormous quantities of fluid without ever showing on the skin surface as perspiration.

Is not dehydration a factor in all cases of heat prostration and sunstroke? The amount of water demanded by furnace workers is proverbial. The buckets of beer which were regularly supplied to steel workers in pre-Volstead days and the enormous quantities of fluid taken by the stokers in the holds of steamships, especially naval vessels where temperatures often reach 130 to 140 degrees, indicate that the organism craves more fluid and makes a continuous demand for it. In this connection, efforts to maintain an adequate supply of sodium chloride should not be neglected. If dehydration is the striking factor in heat exhaustion, the remedy is obvious.

Cornelius van Zwalenburg, Riverside, Calif.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BAKER'S DERMATITIS

To the Editor:—Bakers employed in a local bakery acquire a dermatitis of the hands from mixing dough. The condition is severe and disabling, and is resistant to treatment. It is not caused by all dough, but certain flours seem to exert a specific action. Will you kindly explain the etiology and assist in treatment?

Harold C. Cox, M.D., Highstown, N. J.

Answer.—Bakers' dermatitis (bakers' itch), like bakers' anemia, is an enigma to occupational disease workers. When a trade disease is attributed to many causes, it is usually true that the condition is not specific. Bakers' dermatitis has been attributed to flour "improvers," such as potassium persulphate, calcium sulphate in confectioners' flour, cream of tartar, salt, sugar, bran, acarids, wetness, wheat protein sensitization, yeasts, fungi, and mechanical action of dough. So loosely is the term applied that practically any skin lesion of the upper extremities in bakers is prone to be called bakers' itch or dermatitis. It is granted that dermatoses occur at a much higher rate among bakers and confectioners than among workers in general. However, both lesions and causative agents vary from person to person and outbreak to outbreak. At the present time more significance is to be attached to low grade mechanical injury from dough followed by mycotic invasion (or extension). Obviously, treatment will depend on the precise cause, which must be established from case to case. For those cases due to mycotic action, Mummery recommends the use of 33 per cent mercurous chloride in wool fat. Often it is necessary to carry out systemic treatment for generally lowered resistance, which is quite common in bakers. Metchnikoff's ointment (just mentioned) may not be expected to be of appreciable value in cases due to wheat (or other) protein sensitization. Extensive information on bakers' dermatitis may be found in the following:

Parsons, A. C.: Abstract of Report on Bakers' Itch, *J. Indust. Hyg.* **5**: 410 (March) 1924.
Parsons, A. C.: Bakers' Dermatitis, *Brit. J. Dermat.* **36**: 193 (May) 1924; abstr. *Brit. M. J.* **2**: 464 (Sept. 13) 1924.
White, R. P.: Bread Bakers' Itch, *J. State Med.* **32**: 556 (Dec.) 1924.
Mummery, N. H.: Bakers' Dermatitis, *Lancet* **2**: 607 (Oct. 3) 1925.

EPILEPSY OR HYSTERIA

To the Editor:—I was called to see a woman, aged 25, who had imbibed moderately of intoxicating drinks twice within the last six months. The heart rate was 94, respiration 18 and shallow, pupils contracted, and every muscle in the body rigid, so that the arms or legs could not be flexed. The mouth was open and drooling saliva. She was comatose and no mechanical stimulus would rouse her. The girl is head bookkeeper for a large concern and is above the average in intelligence. These attacks came on five years ago, following an operation for appendicitis. At the beginning, these attacks came on more frequently and had no relation to alcohol. There were no convulsions and no premonition. I have considered as a diagnosis cerebral edema, or "wet brain," but from the history by far most of her attacks have not followed drinking. Hysteria has also been considered. What are the possibilities? Please omit name.

M.D., *Connecticut.*

Answer.—From the description given this may be either epilepsy or hysteria. Epileptic attacks may be purely tonic and if the patient could not be aroused, and if the pupils did not react to light during the coma, the epileptic nature of the attack would be possible. If the use of alcohol has been at all moderate it is not likely that alcohol has been a factor. It is impossible with the data at hand to offer an opinion as to the probability of hysteria, as this would necessitate knowledge of mental conflicts and other difficulties in the path of the patient.

FAMILY WITH HIVES THROUGH FIVE GENERATIONS

To the Editor:—Three of a family of five children are pestered with swellings which do not resemble hives but which possibly have an appearance more like hives than like any other lesion. These appear more or less periodically, but especially during cold weather. The swellings vary from the size of a split pea to less than that of an almond and ache but do not itch. They are red but, after the fashion of hives, may disappear within a day or two. Nothing by way of treatment has been of any avail. The high lights of the children's history are as follows: About five generations ago, two boys made a wager to see which could stay in swimming the longer. Neither exactly outdid the other, but when finally rescued from this stubborn wager they were both covered with the same "lumps" with which the present children are now afflicted. One of the boys died and the other lived and seemed to be normal in every way. Through succeeding generations, groups of children which follow the tree of the boy who lived have had the same trouble. From two to five children in each of several families have been thus afflicted and nothing has been discovered which has helped any of them. The children that I have in mind have been treated a great deal and have had innumerable tests made. I wonder whether this particular family has ever been reported or if anything is known about such a condition.

Louis L. Sherman, M.D., Oakland, Calif.

Answer.—There are no recognized evanescent lesions which resemble the lesions described here except those of hives. These cases are apparently cases of hives in patients with unstable cutaneous circulation; unstable particularly in tolerance to cold. Cases of hives frequently present themselves in families who have a predilection to the trouble although the frank hereditary factor has been little discussed in the literature.

SENSITIVE AREA ON TONGUE

To the Editor:—I have had a sensitive and at times painful area on one side of my tongue for six months. It appears normal. The bridge work on the affected side has been removed. The Wassermann reaction is negative. So far as I know I am in perfect health. What would you suggest for the sore tongue? I am 45 years old. Please omit name.

M.D., Mississippi.

Answer.—A painful area on the tongue, or glossodynia, with a normal mucous membrane may be a neurosis or it may be due to irritation from adjacent teeth, dental fillings or amalgams. If there is a denuded, sharply defined patch at the site of the pain with extreme sensitiveness to foods, it would suggest a diagnosis of Moeller's glossitis. Enlargement of the foliate papillae at the side of the tongue should be looked for. Also the possibility of pernicious anemia should be considered. In the absence of any positive conditions, mild counterirritation with dilute solution of silver nitrate (from 5 to 10 per cent) may be helpful.

TINGLING SENSATION IN THE SKIN

To the Editor:—A man, aged 30, who seems to be in perfect health, says he has had for six years a tingling sensation in his skin, sometimes in small areas, sometimes universally distributed over his body, which appears either after a bath or while his skin is wet from perspiration. After his skin has been thoroughly dried, all tingling disappears. It is severe at times, making him feel as if he were on fire. There is no rash. He says that there are no other evidences of disease, in particular the allergic diseases, with the exception that eating clams or clam soup immediately causes abdominal pain. He states that there is no seasonal variation. It would seem of course to be pruritus, but its relationship to a wet skin is most unusual so far as my experience goes. Can you suggest anything regarding the nature of it, or the procedure to determine its cause? Please omit name if published. M.D., North Carolina.

Answer.—The condition described appears to be a hyperesthesia produced by external factors analogous to the cases of urticaria following exposure to cold and other physical agents (so-called physical allergy). There are a number of possible causes. There may be some functional or organic change in the central nervous system. It may occur in neurasthenic and hysterical states. The description does not fit in with the picture of a bath pruritus as the complaint is a tingling sensation and not itching. A neurologic examination is indicated.

DIFFERENTIAL DIAGNOSIS OF NEUROLOGIC CONDITIONS

To the Editor:—A white man, aged 51, complains of "the smell of smoke." One month ago he noticed a strong smell of smoke and a haze passed over his eyes. This attack lasted a few minutes and passed away, leaving him slightly dizzy. After an attack he notices that he perspires freely. These attacks have occurred more frequently in the past two weeks and he receives no warning of their occurrence. He does not lose consciousness. His past history is without incident, except for an attack of rheumatism eight years ago which kept him in bed for two months. Up to six months ago he was an engineer in a power house and was subject to the fumes of oil vapor. There is no history of venereal infection. Physical examination was practically negative. The eyegrounds were normal. The blood pressure was 130 systolic and 75 diastolic. There was no cranial nerve involvement. Wassermann examinations of the blood and spinal fluid were negative. The spinal fluid was not under pressure. During his last visit to my office he complained of momentary losses of recent memory. I shall appreciate any suggestions as to diagnosis and treatment. Kindly omit name. M.D., Michigan.

Answer.—An exact diagnosis is not possible from the symptoms reported. The momentary attacks with an aura involving the sense of smell suggest the possibility of the so-called uncinate fits that occur occasionally in association with a lesion involving the mesial aspect of the temporal lobe, in the region of the uncinate gyrus. At the age of 51, such a lesion might be either vascular or neoplastic. It is also possible that the condition is functional; in this connection one would inquire as to the reason for leaving work, as a possible source of emotional upset, since apparently it took place one month before the onset of symptoms. Careful search must be continued for evidences of organic injury. Studies of the visual fields and the sense of smell are indicated, and it may be necessary to have a neurologic surgeon perform encephalography or ventriculography in order to exclude a neoplasm. The treatment to be prescribed necessarily will depend on the conclusion reached as to the presence or absence of an organic lesion.

CRUMBLING OF TEETH

To the Editor:—A girl, aged 8 years, is normal and healthy in every respect except for the condition of her teeth. The first teeth were lost early, not in the usual manner, as they crumbled and wore off. She has never had a toothache. The second teeth now coming on are doing likewise. The grandmother had the same condition and I think that some of her ancestors were likewise affected. Of her children (eight or nine), six or seven show some peculiarity, including the father of the child. Of the grandchildren, about one half have normal teeth and the rest abnormal. I am unable to find anything in medical works at hand regarding this condition, and this family is the only one exhibiting the peculiarity that I have come in contact with. The father has been told by a dentist that the condition is due to lack of calcium in the blood, and the laboratory test shows the following: Kahn, micromethod negative in one tube with 0.05 cc. of serum; calcium, 5 mg. per hundred cubic centimeters of blood serum. The father has two other children, 10 and 2 years of age, with normal teeth.

Orville Pitney, M.D., Cheraw, Colo.

Answer.—This resembles the condition described by Martha Jones (*Dental Cosmos*, July, 1930) in children from San Francisco and on the Hawaiian Islands. It is usually confined to the deciduous teeth, although the permanent teeth seem to be susceptible to ordinary dental caries. Whether there is an hereditary factor involved is not clear, as it would appear that the condition may occur in children in whom such influence is lacking. Some peculiarity of mineral metabolism would probably favor its development, and such a peculiarity may be accounted for on an hereditary basis. Certainly 5 mg. of calcium per hundred cubic centimeters of blood serum is much too low.

It would seem that some plan is indicated including not only painstaking technical care of the teeth but also an effort to improve mineral metabolism largely through supervision of the diet whereby foods containing calcium and phosphorus may be ingested in abundance. The carefully controlled use of cod liver oil or viosterol in oil 250 D is probably indicated. The use of endocrine extracts in such cases has not been sufficiently successful to warrant giving them. Even under such a plan in a girl 8 years of age, because of the damage that has already been done to the permanent teeth, improvement will probably be slow and brought about only by intelligent cooperation of the dentist and physician in charge.

ENLARGED GLAND AT ANGLE OF JAW AND RELATION TO TONSILLITIS

To the Editor:—When one finds a single lymphatic node enlarged at the angle of the jaw, what conclusion is justified in regard to an infected tonsil being the cause of the enlargement and being, therefore, in need of removal? What other sources of infection may cause enlargement of this node? When this node is enlarged and no other sources of infection are found, should it be assumed that the tonsil is infected and should be removed? Please omit name. M.D., New York.

Answer.—The gland that is usually found below the angle of the jaw is often called the "tonsillar gland," because in infections of the faucial tonsils it is often enlarged. It is possible, however, that some infection in the region of but not absolutely involving the tonsils may cause enlargement of this gland. In most instances when it is present together with a history of tonsillar infections it indicates removal of the tonsils. When the gland is simply found enlarged and there are no sources of infection found in the pharynx and no history of any previous involvement, one might await future developments before removing the tonsils.

SPONDYLOSIS CHRONICA ANKYLOPOIETICA

To the Editor:—A white man, aged 32, has been ill for the past eight years, suffering from a stiffness of the spine. This condition began in the sacral region and has been progressing upward, so that now the patient is unable to bend forward or backward. In the neck region, he is unable to move his head in any direction unless the entire body is moved with it. Physical examination reveals no foci of infection. The gastro-intestinal and genito-urinary tracts are normal. Roentgenograms of the spine have been taken and the following is the radiologist's report: "There is a complete obliteration of the intervertebral disks of all the spinal segments with calcification of all the spinal ligaments, resulting in a complete bony ankylosis of all the segments of the spine. The deformity resulting therefrom is an almost complete contracture of the neck with anterior bowing, and in the cervical region at its upper segment there is complete loss of the atlanto-axial motion with fusion of the odontoid process to its constituent cervical segment. In the dorsal region there is obliteration as stated, with bowing of the dorsal segments anteriorly. In the lumbar region the normal anterior convexity is lost and has been replaced by a straight line contour of all the lumbar segments with a sharp angle articulation at the sacrum. There are no evidences of true arthritis, spur formations or exostosis. Diagnosis: spondylosis chronica ankylopoietica of Marie-Strümpell." Wassermann tests have been repeatedly negative. Is there anything else you might suggest? Do you agree with the radiologist's views? Do you think this is a neurogenic rather than an inflammatory or infectious involvement of the spine? What treatment could you advise? At present I am giving the patient sodium iodide, 10 cc. intravenously twice weekly, together with diathermy to the spine. Benjamin Seiler, M.D., Cliffside Park, N. J.

Answer.—The diagnosis of spondylosis chronica ankylopoietica of Marie-Strumpell is evidently correct. If the shoulder and hip joints are involved it should be called spondylosis rhizomelique.

Concerning the neurogenic factor, there is no proof. It is probably on the basis of an old infection, many of which infections are due to the gonococcus. The prognosis in this case is poor.

Treatment includes search for and removal of all sources of infection, including the teeth, throat, sinuses, intestinal tract and especially the prostate and seminal vesicles. Locally rest, radiant heat, and gentle massage of the muscles should be beneficial. The matter of glandular therapy has not been proved.

Most orthopedic surgeons agree that the Bradford frame, at first straight and later made convex, is of value, and that subsequently when the patient is allowed to be ambulatory a Taylor spine brace is beneficial.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: Written examination for Group III candidates to be held in eighteen cities in the United States and Canada, Oct. 31. *Clinical examination for all candidates.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

Arkansas: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

Connecticut: *Regular.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Florida: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

Kentucky: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

Maine: Portland, Nov. 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

Nebraska: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, *Lincoln.*

Nevada: Carson City, Nov. 2-4. Sec., Dr. Edward E. Hamer, Carson City.

South Carolina: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: *Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.*

Utah: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

West Virginia: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

Colorado July Report

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 7-10, 1931. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Forty-three candidates were examined, 42 of whom passed and 1 failed. Six physicians were licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
University of Colorado School of Med.	(1930) 89.7, (1931)	84, 84, 84.2, 84.5, 84.6, 85.7, 85.8, 85.8, 86.2, 86.5, 87.3, 87.5, 87.7, 88, 88.2, 88.5, 88.6, 89.1, 89.3, 89.3, 89.5, 89.7, 90, 90.1, 90.2, 90.7, 90.7, 91, 91.1, 93.5
Johns Hopkins University School of Medicine	(1930)	92.5
Columbia University College of Phys. and Surgs.	(1931)	93.1
National University of Ireland Faculty of Medicine	(1919)	90.7
Osteopaths		76, 77.1, 78.6, 80, 85.7, 86.7, 87.3, 88.5

FAILED

College	Year Grad.	Per Cent
Osteopath		72.1

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
College of Physicians and Surgeons, Los Angeles	(1917)	California
State University of Iowa College of Medicine	(1930)	Iowa
University of Kansas School of Medicine	(1930)	Kansas
Harvard University Medical School	(1929)	N. B. M. Ex.
University of Michigan Medical School	(1930)	Michigan
Western Reserve University School of Medicine	(1923)	Ohio

Mississippi June Report

Dr. F. J. Underwood, secretary, Mississippi State Board of Health, reports the written examination held at Jackson, June 23-25, 1931. The examination covered 12 subjects and included 96 questions. An average of 75 per cent was required to pass. Thirty-five candidates were examined, all of whom passed. Eight physicians were licensed by reciprocity with other states. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1931) 83.8,	84
University of Colorado School of Medicine	(1931)	81.7
Emory University School of Medicine	(1931) 83.4, 84.7,	85
University of Illinois College of Medicine	(1931)	91.3
University of Louisville School of Med.	(1930) 86, (1931)	87
Tulane University of Louisiana School of Medicine	(1930)	86, (1931) 85.9, 86.8, 87.5, 88, 88, 90
Columbia University College of Physicians and Surgs.	(1931)	91
University of Pennsylvania School of Medicine	(1931)	82.8
University of Tennessee College of Medicine	(1931)	82.5, 83.9, 84, 84, 84.6, 85, 85, 86
Vanderbilt University School of Medicine	(1931)	85, 86, 86.7, 87, 87, 87.4, 89.7, 91
Medical College of Virginia	(1931)	87.4

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1906)	Arkansas
Atlanta Medical College, Georgia	(1916)	Georgia
St. Louis University School of Medicine	(1908)	Missouri
John A. Creighton Medical College	(1906)	Nebraska
Meharry Medical College	(1930)	Tennessee
University of Tennessee College of Medicine	(1928)	Missouri
Vanderbilt University School of Medicine	(1927)	Tennessee
McGill University Faculty of Medicine	(1917)	W. Virginia

Alabama July Report

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 14-17, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-two candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
University of Colorado School of Medicine	(1931)	88.6
Emory University School of Medicine	(1931) 84.5, 87.1, 88.1,	90.2
Rush Medical College	(1931)	90 *
Tulane Univ. of Louisiana School of Med.	(1930) 86.1, (1931) 88.5,	88.7, 90.2, 90.2, 90.7, 91.1, 92.5, 94.4, 94.5
St. Louis University School of Medicine	(1931)	90.5
Cornell University Medical College	(1931)	91.6
Vanderbilt University School of Medicine	(1931) 90, 90.8,	94.7
University of Tennessee College of Medicine	(1931)	82.9

Dr. Baker also reports 5 physicians licensed by reciprocity with other states from June 24 to Aug. 15, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School	(1924)	Illinois
Tulane University of Louisiana School of Medicine	(1929)	Louisiana
Vanderbilt University School of Medicine	(1926)	Tennessee
University of Tennessee College of Medicine	(1924), (1930)	Tennessee

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

Book Notices

Abdominal Pain. By John Morley, Ch.M., F.R.C.S., Honorary Assistant Surgeon, Manchester Royal Infirmary. With an introduction by J. S. B. Stopford, M.D., F.R.S., Professor of Anatomy, University of Manchester. Cloth. Price, $3.50. Pp. 191, with 22 illustrations. New York: William Wood & Company, 1931.

The author has been studying abdominal pain for many years and has incorporated in this small volume his views, which from time to time have appeared in English periodicals. He does not accept Mackenzie's theory of viscerosensory and visceromotor reflex. After reviewing the theories of Lenander, Ross, Kappis and Hurst he accepts certain ideas suggested by Lenander and Hurst and states that had Mackenzie realized the difference between splanchnic and somatic pain he would not have adopted his theory of viscerosensory reflex. "The discovery of the peculiar nature of the adequate stimulus for afferent autonomic nerves affords strong presumptive evidence against Mackenzie's theory." The author believes, as Hurst showed years ago, that there is a true visceral pain which is the result of abnormal tension on the splanchnic afferent nerve endings in the muscular wall of the hollow viscera. This pain, however, is only vaguely localized in the abdomen. There is, however, a definitely localizable pain of cerebrospinal nerve origin which is the result of irritation by an inflamed or pathologically irregular viscus, by a pathologic exudate, as blood, gastro-intestinal content or injected air as in pneumoperitoneum, of the parietal peritoneum. Thus the pain produced by a ruptured spleen, pneumoperitoneum, extravasated stomach contents or rarely gallstones coming in contact with the central portion of the under surface of the diaphragm, which is covered by parietal peritoneum, is frequently of the shoulder tip variety. The early pain of gallbladder disease is vaguely referred to the umbilicus or right side of the abdomen; later, when the gallbladder is enlarged sufficiently and pressure in the abdomen results in contact of the overlying parietal peritoneum and the gallbladder, the tenderness is definitely localized to that one point. The pain of peptic ulcer is either vaguely localized when the cause is increased intragastric tension, or definitely localized, as when the peritoneum is brought into contact with the inflamed peritoneal covering of the lesion. These areas of tenderness, in gallbladder disease and ulcer, change their location with a change in the position of the point of contact with the peritoneum, as occurs posturally or, as in the former, with enlargement and descent of the gallbladder. The muscular rigidity and tenderness in general peritonitis are due entirely to the irritation of the parietal peritoneum. The early pain of appendicitis is vaguely localized to the navel but later is definitely localized to the right iliac region through a similar contact of the inflamed organ with the parietal peritoneum. Thus the accurate localization of tenderness becomes of real diagnostic value. If the theory of a viscerosensory reflex would explain this pain, Why, the author asks, is not the pain referred to both sides of the abdomen rather than to one? In the case of a gangrenous loop in an intussusception there is only the vaguely localized pain and no tenderness as long as the encasing loop is not inflamed. The prerenal peritoneum is definitely sensitive, and pressure on the kidney produces pain. The author questions whether the mucosa of the renal and ureteral pelvis may not have a cerebrospinal nerve supply because of the intense localizing referred pain. The last chapter is devoted to some consideration of referred pain, splanchnic and somatic, pleuropulmonary and testicular pain. The book is well written and the subject matter well presented.

THÉORIE ET PRATIQUE DE LA TÉLÉCURIETHÉRAPIE. Par Max Cheval, membre correspondant de l'Académie Royale de Médecine de Belgique, et A. P. Dustin, professeur d'anatomie pathologique de Université de Bruxelles. Paper. Price, 34 francs. Pp. 238, with 76 illustrations. Paris: Masson & Cie, 1931.

The authors describe in detail an apparatus for the application of gamma rays by distant irradiation. The method has been used for the last three years. The apparatus permits the treatment of two patients at the same time, a procedure used first by Mallet and Colier in 1925. The distribution of equal intensities of the radiation were measured with an electroscope. The focus skin distances used were 12, 14 and 16 cm. and the intensities obtained in the depth at 10 cm. were 20 to 21, 24 to 25, and 26 to 27, respectively. The applications are given daily in divided doses repeated from ten to twelve times, the total dose to each field being from 18 to 24 gram hours of radium destroyed, which is equal to from 24 to 36 D. of Proust and Mallet. Intratumoral insertions of radium or radon capsules are added wherever possible. The action of radium rays on the general constitution, the healthy tissues and the various cell types of cancers is discussed and illustrated. A large number of clinical reports is added including cancers of the upper respiratory tract, the esophagus, the breasts, the uterine cervix, the rectum and sarcomas. The conclusions given are that distant gamma ray therapy is an efficient method to cure early cancers and to palliate advanced cancers. The interval applications permit a distribution of the total dose over ten or twelve days. The large amount of radium employed shortens each sitting to two or three hours, permitting the patient to be up the rest of the day and avoiding the strain of long confinement in one position. The total dose applied by this technic does not cause any intense and adverse reactions of the skin area, the blood, and the general health. Observations gathered in this country with distant radium treatment coincides almost entirely with those stated in the monograph.

CONTEMPORARY SCHOOLS OF PSYCHOLOGY. By Robert S. Woodworth, Ph.D., ScD, Professor of Psychology, Columbia University Psychology Series. Albert T. Poffenberger, Ph.D, Editor, Professor of Psychology, Columbia University. Cloth. Price, $2.50. Pp. 232. New York: Ronald Press Company, 1931.

The author is eminently fitted for this survey of contemporary psychology. During his years of teaching he has made fundamental contributions to psychologic literature. He has no ax to grind for any theory; neither is he an enthusiast or a hostile critic. The book presents an impartial picture of the essential features of the trends in present-day psychology. After an historical introduction there follow chapters on traditional introspective psychology, behaviorism, gestalt psychology, psychoanalysis, the purposive psychology of McDougall, and a final chapter on the middle of the road, which the author takes. It is not an elaborate, critical work which would appeal only to the professional psychologist. It should have an appeal for the general reader and especially for the physician who wants to know something about present-day psychology. It would be difficult to imagine a briefer, clearer or more interesting summary in its field. There is probably not a better introduction to the writings of Freud, Jung and Adler than the author's chapter on psychoanalysis. The balanced point of view that pervades it could come only from one whose experience in this field has been extensive, critical and mature.

PRÉCIS D'OTO-RHINO-LARYNGOLOGIE. Par Georges Laurens, laryngologiste de l'Hôpital Saint-Joseph. Avec la collaboration de Maurice Aubry, laryngologiste des hôpitaux, et André Lemariey, assistant de laryngologie. Cloth. Price, 120 francs. Pp. 1224, with 428 illustrations. Paris: Masson & Cie, 1931.

This work is termed a "compend," but it is a most extensive one indeed. While it is dedicated by the authors to students, practitioners and young otolaryngologists, it will really serve the experienced otolaryngologist as well. All historical references except the most recent ones are omitted. The book covers almost every condition in ear, nose and throat work and diseases of the trachea and esophagus. It is surprising to note with what completeness the subject of the functional testing of hearing, testing of the vestibular apparatus, and detailed operative procedures of the ear, nose and throat are given. Every subject is systematically arranged and treated with the clarity that is characteristic of most French writings. There are numerous illustrations, which are simple and instructive. In a word, this is a veritable "multum in parvo," the reading of which will well repay every one interested in otolaryngology. The lack of bibliography can easily be supplied by larger works if the reader desires to review the complete literature on any subject, but in a work of this type it is not essential. The book gives a well organized comprehensive discussion of the field of otolaryngology, and it is done in admirable style.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Tenth edition. Cloth. Price, $6. Pp. 819, with 200 illustrations. Philadelphia: W. B. Saunders Company, 1931.

The tenth edition of this well known book differs from the previous edition only through the attempt of the author to keep it abreast of the times. He has made extensive revisions of the sections on undulant fever, the paratyphoid group, the filtrable virus diseases, pathogenic yeasts, anaerobes, and the section on variation. The subject of bacteriophage has been handled with greater detail than heretofore, and minor changes have been made in many other chapters. The author has tentatively employed some generic names that have come into general use, such as salmonella, mycobacterium and brucella, and he has reluctantly introduced even the term eberthella. He recognizes that nomenclature in bacteriology is still a vexed question and will remain so until a general system can be worked out by international agreement. The author does not, of course, attempt the impossible task of extensively treating in one fair-sized volume all of bacteriology. He has, however, fully treated the fundamental principles and the methods of laboratory work.

TRAITEMENT DES SYNDROMES HÉPATO-BILIAIRES. Par le Dr. G. Parturier, professeur d'hépatologie à la Faculté Libre de Médecine de Lille. Paper. Price, 30 francs. Pp. 334. Paris: Vigot Frères, 1931.

In this book is presented from the medical standpoint a fairly comprehensive study of primary liver disease, particularly jaundice of hepatic origin, the various infections, cysts and tumors of the liver; the cirrhoses with differential diagnostic methods, and the mechanism and treatment of hemorrhage. Medical and surgical indications make up the bulk of the text. It is a text not altogether easy for the American physician to assimilate. The vast number of "cures" for alimentary disease that are found throughout central Europe contribute the basis for much of the therapy. At best the subject has a greater pathologic than clinical interest, excepting from the point of view of differential diagnosis, which is well handled in well arranged tables. There is a regrettable absence of the newer literature bearing on the relation of calcium metabolism and jaundice. The treatment of hemorrhage due to jaundice is inadequately handled. There are no illustrations.

Recent Advances in Pulmonary Tuberculosis. By L. S. T. Burrell, M.A., M.D., F.R.C.P., Senior Physician to Royal Free Hospital. Second edition. Cloth. Price, $3.50. Pp. 240, with 49 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

The title of this work is something of a misnomer. The book is more of a compend, concise and meaty. There may be those who will not entirely agree with the author's views in every respect, but the little volume is no worse for that. It contains in brief form about all that there is to be said with regard to the treatment of tuberculosis of the lungs. It is to be regretted, perhaps, that recent German authors were not mentioned in the section on pathology. It would be interesting, for instance, to know what an Englishman such as Burrell would have to say regarding the "schub theorie" of the advance of disease (tuberculous). "Sanocrysin" receives attention to the extent of nine pages. It will be remembered that this gold preparation has been condemned by various authorities in the United States in the face of carefully prepared reports by responsible medical men, Burrell's chapter on "Sanocrysin" indicates careful investigation of this subject. It certainly does not smack of overzealousness. The book takes up, in course, artificial pneumothorax, radiology, complications and treatment, and climate.

Diagnostic des tumeurs cérébrales et épreuve de l'encéphalographie artérielle. Par Egas Moniz, professeur de neurologie à la Faculté de médecine de Lisbonne. Préface de M. le Docteur Babinski. Paper. Price, 100 francs. Pp. 512, with 225 illustrations. Paris: Masson & Cie, 1931.

In this interesting work the author presents the result of his studies on more than ninety cases in which he and his associates have done "arterial encephalography." The technic of injecting sodium iodide into the carotid arteries and of taking the roentgenograms is given. With numerous case records and many excellent roentgenograms he then discusses the positive observations in "arterial encephalography." The disadvantages, particularly homolateral convulsive seizures and rarely hemiplegia, are also thoroughly discussed and cases cited. Regardless of one's opinions as to the value of arterial encephalography and as to the advisability of using it clinically, one cannot help but appreciate having this well documented report of the experiences of this careful worker, who was the discoverer of the method and remains its chief advocate. More than half of the book is devoted to the symptomatology of tumors of the brain in general. However, although this portion adds nothing to the book it does not detract from Professor Moniz's clear presentation of his main thesis.

Roentgen Interpretation: A Manual for Students and Practitioners. By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital, and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital. Fourth edition. Cloth. Price, $5. Pp. 339, with 237 illustrations. Philadelphia: Lea & Febiger, 1931.

The authors have written an intelligent and easily readable outline of some of the most important principles of roentgenology. The discussion is notable for its clarity and the subject matter has been brought down to date. The portion of the work that is devoted to technic is exceptionally clear and valuable for the beginning roentgenologist. The subject matter is well condensed and the book is to be highly recommended to all students of roentgenology.

Studies of Protection Against Tuberculosis: Results with B. C. G. Vaccine in Monkeys. By A. Stanley Griffith. Medical Research Council, Special Report Series, No. 152. Paper. Price, 9d. Pp. 49. London: His Majesty's Stationery Office, 1931.

The great reputation of Dr. Griffith, whose pioneer experiments did much to develop our understanding of the relations of human and bovine tuberculosis, gives this pamphlet especial importance. The British Medical Research Council has taken the stand that the administration of B C G to children is unjustifiable until indisputable confirmation of Calmette's work has been obtained. The report here noted deals with experiments which Dr. Griffith made at the request of the council's committee on the bacteriology of tuberculosis. The experiments were confined to monkeys and to a considerable extent repeated the work of Wilbert, who directed the original B C G experiments of the Pasteur Institute on anthropoid apes in French Guinea. Griffith's experiments on monkeys, however, failed to confi Wilbert, who reported a strong immunizing action of B C Griffith has found that B C G is indeed of low virulence f monkeys and is absorbed from the alimentary tract after o administration. But his vaccinated monkeys failed to show a protection against subsequent virulent tuberculous infecti The trials were numerous and obviously made with great ca Their negative result is another strong blow for the contentio of Calmette, which have encountered much opposition in oth quarters recently.

The Inborn Factors in Disease: An Essay. By Archibald E. Garr K.C.M.G., D.M., LL.D., Consulting Physician to St. Bartholomew's H pital. Cloth. Price, $2.75. Pp. 160. New York: Oxford Univers Press, 1931.

It is common knowledge that no two individuals, some s even identical twins, are exactly alike. Many anatomic a physiologic differences are often plainly evident; others, especially the chemical ones, may be brought out only by careful examination. These inborn factors may have a definite and often inescapable bearing on the health history. Various terms, not always sharply differentiated, are used to denote these individual or racial peculiarities: hereditary influence, the constitution of the person, diathesis, predisposition, susceptibility, natural immunity or vulnerability as concerns infections, idiosyncrasy. These and other similar terms are often employed without a full realization that there is much concerning them that is not yet understood. Unless one is well informed in these matters one may with advantage read this timely and fair-minded essay of Garrod. Facts and theories are clearly and briefly stated by one thoroughly competent to handle this quite recondite subject. Moreover, it will serve as a guide to one who may wish to pursue still further this feature of disease, which in the future will surely be regarded as of increasing importance.

Les poisons du bacille tuberculeux et les réactions cellulaires et humorales dans la tuberculose. Esquisse d'une conception nouvelle des processus pathogéniques de la tuberculose. Par le Docteur Jean Albert-Weil, chef de clinique médicale adjoint à la Faculte de médecine de Strasbourg. Préface du Professeur A. Borrel. Paper. Pp. 327, with illustrations. Paris: J. B. Baillière & Fils, 1931.

This is a serious attempt to summarize for French medicine the large amount of work done in recent years throughout the world on the chemistry of the tubercle bacillus. It devotes extensive space to the work of Anderson, Johnson, Long, Seibert, Sabin and others working on the chemistry and biology of the tubercle bacillus in this country under the auspices of the National Tuberculosis Association. Unfortunately the author has overlooked much of the American literature since 1928 and has thereby missed an immense amount of material germane to his subject. In general the conclusions are approximately those reached in this country some time ago. The book will be useful in France in supplementing Calmette's comprehensive work on tuberculosis but will be superfluous to the American physician who has access to numerous reviews of this subject in American publications.

Celebration of the Centennial of the Library of the Medical and Chirurgical Faculty of the State of Maryland, 1830-1930. Cloth. Pp. 77 with 37 portraits. Baltimore: Medical and Chirurgical Faculty of the State of Maryland, 1931.

In 1830, the Medical and Chirurgical Faculty of the State of Maryland founded a library. Last year the faculty prepared a centennial exhibit to visualize the period in Baltimore at the time of the founding of the library. Prints of Baltimore of that period were lent for the occasion, the series of bookplates used by the library was shown, and the atmosphere of those early days was in large measure recreated. In addition to the exhibit prepared by the committee, the chairman of which was Dr. John Ruhräh, there were addresses by Dr. Archibald Malloch, librarian of the New York Academy of Medicine, on "A Century of American Medical Libraries"; Dr. Lewellys F. Barker, Johns Hopkins University, "The Development of Internal Medicine During the Past One Hundred Years"; Dr. Irving S. Cutter, dean of Northwestern University Medical School, "Surgical Progress of the Century"; Dr. Joseph Collins of New York, "Progress of Medical Specialties During the Past One Hundred Years"; the governor of Maryland, Albert

C. Ritchie; Dr. John Ruhräh on "Dr. Samuel Baker, the Founder of the Library"; Marcia C. Noyes, the present librarian; Dr. Harry Friedenwald, "The Inspection and Growth of the Library," and Dr. William H. Welch, Johns Hopkins University, "Medicine in 1830." Twenty-eight years after the library was founded, the faculty first met in a home of its own. This building was outgrown in less than ten years, being sold in 1867. The new location at 60 Cortland Street, taken over in 1869, was too small for the library and other activities of the faculty, and was given up. In 1874 the library moved to Fayette Street. In 1878 another move was made across Fayette Street to a hall, where, there being no attendant most of the day, it was the custom to hang the key where all members would have access to it. In her address, the present librarian suggests that this custom may explain why so many books that were in the early collection are now missing. In 1885 the faculty moved to a basement in the old Atheneum, at St. Paul and Saratoga streets, and in 1896 to North Eutaw Street, where a full time librarian was employed. The move to this home was in large measure due to Dr. William Osler, who spent many hours in the library. The last move was made in 1909 to 1211 Cathedral Street into a new building owned by the faculty. The Library of the Medical and Chirurgical Faculty of Maryland began with 274 books; during the last quarter century the number was brought up to 45,000 books. Dr. Malloch, in his address, recalls interesting facts concerning American medical libraries. The oldest medical library is the Pennsylvania Medical Hospital Library, established in 1763. There are now in this country and Canada about 214 medical libraries; the largest is the Library of the Surgeon General's Office, Washington, D. C., in which there are 324,541 bound volumes and other items to make a total of 853,462. Thus medical libraries have multiplied and grown, and among those which have established splendid traditions of service is the Library of the Medical and Chirurgical Faculty of Maryland.

Frauengymnastik im Lichte der funktionellen Entwicklung. Von Hugo Sellheim, Prof. Dr. Med. geheimer Medizinalrat, Vorstand der Univ.-Frauenklinik zu Leipzig. Paper. Price, 2.10 marks. Pp. 43, with 42 illustrations. Leipzig: Curt Kabitzsch, 1931.

This is a reprint of a lecture delivered by Sellheim on the subject of gymnastics and its effects on women. He points out not only the benefits derived from properly directed athletic activities but also the harm that results from the various sports. He discusses the effects of different forms of exercise in all phases of a woman's life beginning with childhood and progressing through adolescence, early womanhood, pregnancy, the puerperium and the menopause. One of the things of interest to obstetricians is the author's description of exercises that restore the tonicity and appearance of the abdominal wall after delivery. There are many beautiful illustrations.

Practical Methods in the Diagnosis and Treatment of Venereal Diseases for Medical Practitioners and Students. By David Lees D.S.O., M.A., M.B., Surgeon in Charge of Venereal Diseases, the Royal Infirmary, Edinburgh. With introduction by Wm. Robertson, M.D., F.R.C.P., D.P.H. Second edition. Cloth. Price, $5. Pp. 634, with 95 illustrations. New York: William Wood & Company, 1931.

This compendium contains a detailed presentation of the symptoms, clinical course and treatment of venereal diseases. Numerous illustrations help the understanding of the text, which follows the usual lines. Evaluation of serum, vaccine treatments and diathermic administrations is based on a sober analysis of the results obtainable.

L'Arthritisme: Ses misères, ses dangers, son traitement. Par Dr. Jacques Sédillot. Paper. Price, 30 francs. Pp. 496, with 15 illustrations. Paris: Louis Arnette, 1931.

This bears as a subtitle "L'arthritisme, affaire hépatoendocrinienne." It is an elaborate clinical speculation on the nature of arthritis and certain associated disorders, including asthma. Diagnostic emphasis is placed on determination of the ratio of urinary nitrogen to urinary uric acid. Treatment centers almost entirely on dietetics and purgation, the former chiefly along the lines of avoidance of meat. The book contains few references to the literature, even in French, and would hardly deserve mention except for the fact that, in the light of present knowledge concerning the rheumatoid problem, betterment of gastro-intestinal function in a wide sense of the word, together with intelligent curtailment and balancing of the dietary, constitutes an essential step in therapy in a definite proportion of cases. Citation of successful treatment along the lines elaborated by the author of this book therefore requires evaluation. To relate such results solely to the premises advanced is evidence of unfamiliarity with the large amount of precise data in this field.

Medicolegal

Alleged Mistake in Identity of Clinic Patient

(Samuelson v. Taylor et al. (Wash.), 295 P. 113)

The plaintiff had difficulty in reading, which he attributed to eye strain, and visited a clinic maintained by the defendants, licensed physicians and surgeons. He was there attended by one of the defendants, who examined his eyes. The plaintiff was requested to return the following morning. According to the plaintiff's testimony, he reported to the office nurse the next morning and was sent to the private office of the defendant who had examined him on the previous day. There that defendant told him to sit down in a certain chair, which was not the chair the plaintiff had occupied during the examination on the previous evening. Without asking him any questions whatsoever or making any examination, testified the plaintiff, said defendant proceeded to wash out his right antrum under a local anesthetic. After this was done, the nurse entered the office and was asked by the said defendant if there was any other patient waiting for attention. She replied in the negative. Said defendant stated that he was expecting "that young fellow from the normal school," referring to the plaintiff. Whereupon the plaintiff remarked that he was the patient referred to by the defendant. According to the plaintiff's testimony, said defendant then said: "Gosh, I thought your name was Gilmore," and directed the plaintiff to change his seat to another chair where he further examined the plaintiff's eyes.

Thereafter the plaintiff became ill and suffered great pain in his head. He consulted another physician, who opened his right antrum and found in it dark blood clots and pus. The plaintiff later became very sick and was taken to a hospital, where he remained some time, dangerously ill and suffering severe pain. He sued the defendants for injuries suffered by reason of his illness, alleging that the defendant, who treated him at the clinic, had wrongfully and unnecessarily opened and washed his right antrum under the mistaken impression that he was another patient and that by reason of this mistake the antrum became infected. The trial court gave judgment for the plaintiff, which was affirmed by the Supreme Court of Washington.

The defendants contended that there was no mistake in identity, that the treatment administered by one of the defendants was necessary, usual and proper, that the work was performed skilfully and efficiently, and that the plaintiff's subsequent illness was due either to the operation thereafter performed on the plaintiff by the other physician, or to some extraneous cause concerning which the defendants had no information and for which they were not responsible. Several physicians testified for the defendants to the effect that the treatment given was proper and usual in the course of such an examination as the plaintiff had requested. The physician-defendant who treated the plaintiff at the clinic testified that when he first examined the plaintiff he decided to wash the antrum and so informed the plaintiff when he instructed him to return the next morning. The physician who subsequently attended the plaintiff testified that when he opened the plaintiff's antrum he found it in a very bad condition and that in his opinion the plaintiff's later illness resulted from infection spreading from the antrum.

The fact that the number of expert witnesses testifying for the defendants, said the Supreme Court of Washington, exceeded the number testifying for the plaintiff did not impose on the jury the duty of accepting the defendant's theory and of rejecting the plaintiff's. Whether or not the physician-defendant who treated the plaintiff at the clinic was mistaken in the identity of the plaintiff, and whether or not the washing of the plaintiff's antrum by that physician was proper and necessary, were questions for the jury in view of the conflict of the evidence. While the plaintiff's testimony did not amount to a demonstration that any infection of his antrum was due to the treatment by the physician-defendant, the testimony in relation thereto afforded, in the opinion of the Supreme Court, a sufficient basis for the verdict of the jury. As is often the case, observed the court, the testimony was in direct conflict but it could not hold that the evidence so greatly preponderated in the defendants' favor as to require the setting aside of the verdict.

Kidney Stones Attributed to Contaminated Well Water

(Schlichtkrull v. Mellon-Pollock Oil Co. (Pa.), 152 A. 832)

The defendant oil company, in 1925, drilled an oil well at a distance of 988 feet from a well used as a source of drinking water by the plaintiffs, Mr. and Mrs. Schlichtkrull. In the fall of 1926, Mr. Schlichtkrull complained to the defendant of the presence of salt and sulphur in his well. In May, 1927, Mrs. Schlichtkrull became ill and an operation showed the presence of kidney stones. In this action it was contended that the kidney stones resulted from the defendant's negligence in drilling his well and consequent contamination of the plaintiffs' drinking water. The trial court awarded damages, but the Supreme Court of Pennsylvania reversed that judgment.

A chemical analysis in 1929 of water taken from the well in the fall of 1928, eighteen months after Mrs. Schlichtkrull's illness, disclosed calcium sulphate and carbonates, sodium chloride or ordinary table salt, and a trace of magnesium chloride and carbonate, with some organic matter in suspension. An analysis of the kidney stones removed from Mrs. Schlichtkrull showed calcium and magnesium phosphates, no chlorides nor carbonates, a slight quantity of ammonium phosphate and a large amount of organic matter. No sulphur was found in either the well water or the kidney stones. A general practitioner, a witness for the plaintiffs, testified that the illness of Mrs. Schlichtkrull resulted from the use of the well water. He had never investigated the component parts of the water, although he had examined the report on the chemical analysis of it. He testified that infection may have been a factor in causing the formation of the kidney stones. The physical condition of Mrs. Schlichtkrull, according to her experts, was due to the absorption of magnesium salts, but no effort was made to show that these salts came from the well complained of rather than from other sources which might produce the kidney stones. A witness for the plaintiffs stated that there were five causes which might produce obstructions in the kidneys and that no one could state with certainty the reason for the formation of the stones found. In his opinion, the high mineral content of the water was a factor of first importance in causing the illness. He added, however, that the same mineral elements found in the water are contained in many kinds of food and may be absorbed as a result of eating them. Experts on behalf of the defendant declared positively that there was no connection between the oil well and the kidney stones.

In the opinion of the Supreme Court, the plaintiffs failed to meet the burden of proof resting on them. No one testified, said the court, that the chemical elements producing the kidney stones ordinarily passed, or were ever known to pass, from an improperly protected oil well or that they would pass through the ground for 988 feet. Even though the defendant was negligent in failing properly to case its well, resulting in the percolation of salt water to the plaintiffs' property, it was not affirmatively shown that the defendant knew of any danger in using well water impregnated with ordinary salt, the basis of the complaint made in 1926. The evidence further disclosed that the kidney stones may have been produced in many other ways and there was a failure, said the court, sufficiently to individuate the water as the cause. The drinking water was not analyzed until 1929, nearly two years after the illness, from a sample taken in 1928, and there was no evidence as to the condition of the water at the time of the illness. The injurious elements claimed to have produced the kidney stones were not shown to have existed ever in the defendant's oil well. The mere fact that Mrs. Schlichtkrull became ill in 1927 was not sufficient to prove actionable want of care on the part of the defendant.

Evidence: Mental Competence of Witness Determinable by Trial Court.—Where objection is made to the competence of a witness to testify on the ground of mental unsoundness, the trial court determines the question of competence, and its decision will not be disturbed unless a clear abuse of discretion is shown by the record. In the present case, the defendant was tried for rape. He contended that the prosecuting witness was a nymphomaniac and incapable of speaking the truth. In the absence of the jury, the court, after hearing a large number of witnesses, including some of the leading physicians of the state, found the witness was competent to testify. During the trial, and in the presence of the jury, witnesses were permitted to testify to facts bearing on the mental soundness of prosecuting witness. While this evidence, said the criminal court of appeals of Oklahoma, was inadmissible for the purpose of questioning the capacity of the witness to testify, that question having already been determined by the court, it was admissible as affecting her credibility.—*Miller v. State (Okla.), 295 P. 403.*

Medical Practice Acts: Chiropractic as the Practice of Medicine.—The defendant was convicted under the medical practice act of New Jersey of practicing medicine and surgery without a license. He contended that he merely practiced chiropractic and that such practice did not constitute the practice of medicine and surgery within the meaning of the medical practice act. He had no license to practice chiropractic. The evidence showed that the treatment given by the defendant consisted of spinal manipulation only. The precise question before the court was whether chiropractic is a branch of medicine or surgery. Evidently the legislature elected so to regard it, said the Supreme Court of New Jersey, when, after passing an act to regulate the practice of chiropractic, it repealed it the following year and provided for the issuance of limited licenses under the medical practice act and provided for the appointment on the board of medical examiners of a "reputable chiropractor practicing chiropractic in this state," who "shall represent the school of practice to which he belongs in said board." It was entirely within the power of the legislature, said the court, to label chiropractic as a branch of medicine or surgery. Judgment of conviction was affirmed.—*State Board of Medical Examiners v. Maza (N. J.), 153 A. 259.*

Compensation of Physicians: Liability of Tort Feasor.—One who inflicts an injury on another is bound to restore the injured person as nearly as possible to his former condition and is liable for necessary and reasonable hospital bills. The fact that the brother and sister of a person, injured by the negligence of another, pay, with the assent of the injured person, the hospital bill which had been rendered, does not prevent the injured person from recovering the value of the services represented by the bill from the one responsible for the injury.—*Skillen v. Eagle Motor Co. (N. J.), 152 A. 854.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Chicago, October 29-31. Dr. E. D. Plass, University Hospital, Iowa City, Sec'y.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are *not available* for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

1: 1-44 (July) 1931

Studies on Pathology of Tuberculosis and Syphilis. R. S. Cunningham, Nashville, Tenn.—p. 8.
Plants Causing Hay Fever in Alabama. C. K. Weil, Montgomery.—p. 15.

American J. Medical Sciences, Philadelphia

182: 157-300 (Aug.) 1931

Present Status of Classification, Pathology and Etiology of Chronic Rheumatic Disease. J. L. Miller, Chicago.—p. 157.
Significance of Gastric Secretions in Pernicious Anemia. C. W. Barnett, San Francisco.—p. 170.
Polypi and Polypoid Conditions of Gastro-Intestinal Tract, with Especial Reference to Pathologic and Radiologic Aspects. H. B. Anderson and H. M. Tovell, Toronto.—p. 177.
Brittain's Pathognomonic Signs of Gangrenous Appendicitis. G. P. La Roque, Richmond, Va.—p. 191.
Studies in Complete Heart Block: I. Cardiac Output and Peripheral Circulatory Mechanism. L. B. Ellis and Soma Weiss, Boston.—p. 195.
Aortic Aneurysm Rupturing into Conus Arteriosus of Right Ventricle. E. H. Schwab and C. B. Sanders, Galveston, Texas.—p. 208.
Case of Congenital Stenosis of Pulmonary Valve, with Late Onset of Cyanosis: Death from Carcinoma of Pancreas. J. H. Arnett and C. F. Long, Philadelphia.—p. 212.
Postural Hypotension: Case. A. O. Sanders, Palo Alto, Calif.—p. 217.
Leukocytic Reaction in Tuberculosis of Infancy and Childhood: Blood Studies with Supravital Technic. C. H. Smith, New York.—p. 221.
Percentage of Eosinophils in Blood Smears from Insulin-Treated Diabetics. E. M. Watson, London, Canada.—p. 231.
Further Studies in Case of Calcification of Subcutaneous Tissue ("Calcinosis Universalis") in Child. W. Bauer, A. Marble and G. A. Bennett, Boston.—p. 237.
Toxoid as Immunizing Agent in Diphtheria. H. H. Ray, San Francisco.—p. 251.
Toxicity and Rate of Elimination of Organic Arsenicals in Treatment of Endamebiasis. P. W. Brown and A. E. Osterberg, Rochester, Minn.—p. 257.
Guides to Prevention and Treatment of Simpler Neuroses. M. Fremont-Smith, Boston.—p. 261.

Archives of Internal Medicine, Chicago

48: 171-350 (Aug.) 1931

*Relation of Achlorhydria to Pernicious Anemia. E. Moschcowitz, New York.—p. 171.
Circulation in Arteriovenous Aneurysm: Before and After Operation. C. Smith, Atlanta, Ga.—p. 187.
Malignant Nephrosclerosis: Pathogenesis. P. F. Shapiro, Chicago.—p. 199.
Body Types in Women of Infertile Constitution: Value of Surface Area Proportions as Anthropometric Method of Differentiation. S. G. Berkow, Perth Amboy, N. J.—p. 234.
Inflammation: Protective Mechanism. V. Menkin, Boston.—p. 249.
Mechanism of Production of Subauricular Beats by Digitalis Bodies. H. Gold, A. Lieberson and B. Gelfand, New York.—p. 262.
Relation Between So-Called Renal Lesions of Plasmapheresis in Dogs and Contracted Kidneys in Man. L. Leiter, Chicago.—p. 286.
Chemistry and Metabolism in Experimental Yellow Fever in Macacus Rhesus: IV. Tolerance Tests for Dextrose. A. M. Wakeman and Clare A. Morrell, New York.—p. 301.
*Rôle of Artichokes in Diet of Diabetic Patient. H. B. Stein, B. Longwell and R. C. Lewis, Denver.—p. 313.
*Effects of Treatment with Oxygen in Cardiac Failure. A. L. Barach and D. W. Richards, New York.—p. 325.

Achlorhydria and Anemia.—Moschcowitz states that achlorhydria is such a constant sign in pernicious anemia that probably no case is valid unless it is present. Achlorhydria is not the result of the disease but is primary. Evidence for this is shown in the fact that there is no diminution of hydrochloric acid in the progress of a case of pernicious anemia and that achlorhydria is present from the onset, that achlorhydria persists in the stage of remission and that it has been found frequently for years before pernicious anemia became manifest. Achlorhydria occurs normally in a small percentage of persons. In order to determine this percentage, it is essential that mass studies be made not only with the fractional method of testing gastric secretion but also with the tests with neutral red and histamine. The percentage of persons with achlorhydria apparently increases with each decade. It is extremely rare in childhood. Achlorhydria is often present in certain families. In families in which a case of pernicious anemia has occurred, the incidence of achlorhydria is much higher than normal. As this incidence increases in each decade and as achlorhydria is *exceptional in childhood, achlorhydria itself is* not transmitted but only the tendency thereto. Pernicious anemia is frequently hereditary and familial. Whether pernicious anemia is always hereditary and whether it is a dominant or recessive character and transmissible according to the mendelian law cannot be determined until such families are studied with particular reference to achlorhydria and with accurate hematologic examinations being made for three generations at least. The available evidence is not convincing that Bothriocephalus latus causes pernicious anemia. There is ground for believing that such reported cases represent instances of true pernicious anemia that happen to be associated with infestation with Bothriocephalus. There is a definite relation between achlorhydria and anemia, of the pernicious, secondary and chlorotic types. The blood of relatives of patients with pernicious anemia shows changes, which sometimes may be regarded as the earliest or preclinical evidence of the disease. For diagnostic purposes, it is important to recognize this preclinical phase. The development of pernicious anemia after an acquired achlorhydria, for instance after complete gastric resection, has not definitely been proved. Many of the so-called severe anemias of pregnancy (exclusive of those due to hemorrhage or sepsis) represent cases of true pernicious anemia in which the patients have become pregnant. Whether the pregnancy is the inciting factor in patients with a constitutional tendency remains to be proved. The anemia of sprue is often associated with achlorhydria. It has not yet been established how often achlorhydria is acquired or is a constitutional tendency in this disease. Achlorhydria is the most tangible but not the only evidence of the constitutional background of pernicious anemia. In all probability, pernicious anemia represents a combination of a deficiency disease and a lack of a gastric hormone.

Artichokes in Diabetic Diet.—According to Stein and his associates, the carbohydrates of the jerusalem artichoke are absorbed and utilized by patients with diabetes mellitus of the mild to moderate type, but they are no better tolerated than carbohydrates from other sources. Whenever the authors have obtained an apparent beneficial effect from feeding artichokes there has also occurred a formation of large amounts of intestinal gas arising from bacterial fermentation. Consequently there must have been a simultaneous reduction in the amount of assimilable carbohydrate sufficient to account for the decrease in the amount of sugar eliminated. The reputed therapeutic value of jerusalem artichokes in the diet of the diabetic patient, reported frequently by physicians from their personal experience, is based too often on uncontrolled observations and is a result both of overenthusiasm on the part of the observer and of the tendency of human nature to anticipate results, even at the expense of erroneous conclusions. As moderate amounts of jerusalem artichokes may be given without harm to patients with diabetes mellitus, physicians may well adopt the practice of using this vegetable to furnish variety to their prescribed diabetic diets.

Oxygen in Cardiac Failure.—Barach and Richards treated eight patients suffering from various forms of circulatory failure, with cyanosis, in an oxygen chamber for from three to sixty days, the oxygen in the atmosphere being kept at 45 per cent. The five patients who had congestive cardiac failure with arterial anoxemia were benefited by an atmosphere containing a high degree of oxygen. The striking objective changes were increased arterial oxygen saturation with decrease of cyanosis, diminished pulmonary ventilation and rise in the carbon dioxide levels. Subjectively, there was relief from dyspnea and orthopnea. Three of the patients experienced marked diuresis and disappearance of edema while breathing a high degree of oxygen. The edema returned when the degree of oxygen was lowered, and again disappeared when the oxygen was increased, *as long as cardiac insufficiency was present.*

Archives of Ophthalmology, Chicago

6: 151-328 (Aug.) 1931

Histology of Fistulas Following Anterior Sclerectomy. S. Holth, Oslo, Norway.—p. 151.

Metabolism of Eye: II. Clinical Applications. W. S. Duke-Elder, London, England.—p. 158.

Chiasmal Symptoms in Intracranial Tumors. L. Davis, Chicago—p. 180.

Choroideremia: Case. W. R. Parker, Detroit, and F. B Fralick, Ann Arbor, Mich.—p. 213.

Some Contributions to Art of Localizing Ocular Foreign Bodies. H. A. Goalwin, New York.—p. 221

Ocular Symptoms in Diagnosis of Tumor of Brain. W. D. Abbott, Des Moines, Iowa.—p. 244

Unilateral Pigmentary Retinitis M. N. Beigelman, Los Angeles—p. 254.

Diagnostic Methods J. N. Evans, Brooklyn.—p. 262.

Archives of Otolaryngology, Chicago

14: 125-256 (Aug.) 1931

*Specific Prophylaxis of Pneumococcus and Streptococcus Meningitis I. J. A. Kolmer and K. W. Amano, Philadelphia—p. 125.

Myoclonic Movements of Larynx and Pharynx Manifestation of Epidemic Encephalitis. J. H Childrey and H L. Parker, Rochester, Minn—p. 139.

Fatal Hemorrhage Resulting from Extension of Retropharyngeal Abscess to the Deep Vessels of Neck J Lifschutz, Chicago—p. 149

Study of Tinnitus. R. L Wegel, New York.—p. 158.

Larynx in Paralysis of Recurrent Laryngeal Nerve. J J Farrell, Cleveland.—p 166

The Symptom of Vertigo. W E. Grove, Milwaukee. p. 177.

*Primary Tuberculosis of Nasal Mucous Membrane F Z Havens, Rochester, Minn—p. 181.

Pathogenesis of Otosclerosis. K Wittmaack, Hamburg, Germany p 186.

Melanin in Inner Ear Dorothy Wolff, St. Louis—p. 195

Serum Prophylaxis.—Kolmer and Amano state that the intravenous and intramuscular administration of newer concentrated antipneumococcus serums to monkeys and dogs after intracisternal inoculations of virulent type I pneumococci had some prophylactic value in the prevention of meningitis. The intravenous and intramuscular administration of those antipneumococcus serums to rabbits after inoculation of virulent type I pneumococci into the mastoid and the intratympanal and intracisternal areas had definite prophylactic value in the prevention of meningitis and septicemia. Less definite prophylactic results were observed in rabbits inoculated intracisternally with virulent type II and type III pneumococci. The simultaneous administration of ethylhydrocupreine hydrochloride by intravenous and intramuscular injection and of ethylhydrocupreine base internally probably enhanced the prophylactic activity of the antipneumococcus serums. In rabbits the intravenous and intramuscular injection of scarlet fever antitoxins had some prophylactic value in the prevention of meningitis and septicemia produced by the intracisternal inoculation of virulent hemolytic strains of streptococci. The authors suggest that the routine bacteriologic examination in chronic infections of the sinuses be made before operation and in mastoiditis at operation, to be followed by the prophylactic measures outlined in cases of unusual severity in which meningitis may occur.

Tuberculosis of Nasal Mucosa.—According to Havens, five cases of primary nasal tuberculosis have been observed in the Mayo Clinic. The patients were all 50 years of age or more. Three of the five patients had symptoms of obstruction. All had granular masses involving the septum or turbinates, but in only one instance was ulceration noted. In two cases the septum was perforated, in one instance owing to previous treatment with the cautery. In one case treatment was not given; diathermy was used in one case and radium in three cases. In the case in which treatment was by diathermy, recurrence developed. The region in which the recurrence occurred was further cauterized by the physician in the patient's home community, who has reported that a second recurrence has not taken place after ten months. Two patients treated with radium were free from recurrence when last observed, four and one-half months and four years, respectively, following treatment. The third patient has been treated too recently to allow any statement as to results. On the basis of his observations the author concludes that primary nasal tuberculosis is more common in women in the later years of life than in younger women or in men of any age, that it is characterized by the formation of granulomatous masses on the septum and turbinates, that the symptoms are those of obstruction due to tumor and associated crusting, and that radium and diathermy, or the cautery, are efficient methods of treatment.

Archives of Surgery, Chicago

23: 357-542 (Sept.) 1931

Histologic Studies of Brain in Cases of Fatal Injury to Head: II. Changes in Choroid Plexus and Ependyma. C. W. Rand and C. B. Courville, Los Angeles.—p. 357.

*Significance of Fat Embolism. B. M. Vance, New York.—p. 426.

Normal and Pathologic Repair in Thyroid Gland. N. A. Womack and W. H. Cole, St. Louis.—p. 466.

*Plasma Cell Tumors of Nasal and Nasopharyngeal Mucosa. L. N. Claiborn and H. W. Ferris, New Haven, Conn.—p. 477.

Obstructive Pulmonary Atelectasis. W. E. Adams and H. M. Livingstone, Chicago.—p. 500.

*Calcification in Subcutaneous Tissues: Case Associated with Chronic Atrophic Arthritis. H. J. Shelley, New York.—p. 513.

Forty-Fifth Report of Progress in Orthopedic Surgery. P. D. Wilson, L. T. Brown, M. N. Smith-Petersen, J. G. Kuhns and E. F. Cave, Boston; R. K. Ghormley, Rochester, Minn.; M. S. Danforth, Providence, R. I.; G. Perkins, London, England; A. van Dessel, Antwerp, Belgium, and C. H. Bucholz, Halle, Germany.—p. 521.

Fat Embolism.—Vance calls attention to the fact that severe fat embolism gives rise to two distinct clinical pictures associated with definite pathologic lesions: 1. The pulmonary type, which occurs in the first two days after the injury, is referable to a marked obstruction of the arterioles and capillaries of the lungs. The patients die as the result of asphyxial symptoms. 2. The emboli may pass through the pulmonary capillaries into the systemic circulation and cause definite lesions in the brain, heart and other organs. In such instances, death occurs in from two to seven days from the involvement of the central nervous system; for this reason, this type is known as the cerebral type. The clinical diagnosis of fat embolism is made only occasionally because the complication is rare and because the symptoms may be attributed to some other condition in the body. The asphyxial symptoms of the pulmonary form may be confused with the terminal symptoms of an associated chronic disease of the heart and lungs. This may occur all the more readily because a pulmonary embolism of moderate grade can aggravate lesions of this type. The cerebral type is often overlooked, especially if an injury of the head is present, as the coma from the latter not only may obscure the typical clinical picture but, on occasion, may simulate it. The diagnosis during life is not easy and can be made only if the possibility of fat embolism is kept in mind and if the symptoms and signs that suggest it are not overlooked. For this purpose, hard and fast rules cannot be formulated, but much must be left to the native astuteness of the individual diagnostician.

Plasma Cell Tumors.—Claiborn and Ferris state that twelve cases of plasma cell tumors occurring in the nasal or nasopharyngeal mucosa have been reported in the literature. They review these and add two cases of their own. Of these, all but two occurred in men. Plasma cell tumors of the nasal and nasopharyngeal mucosa are probably much more frequent than the specific literature would lead one to believe. Undoubtedly many growths diagnosed clinically as nasal polypi and not studied microscopically have a predominant plasma cell structure. Accumulations of plasma cells may accompany syphilitic, tuberculous or other chronic inflammatory processes to such a degree as to simulate true neoplasms. Many of the plasma cell tumors are benign neoplasms. Most of the cases that appear malignant are probably manifestations of multiple myelomas.

Calcification in Subcutaneous Tissues.—Shelley reports a case showing peculiar areas of calcification in the subcutaneous tissues. The appearance of the skin and the grating sensation when it was cut would appear to indicate the presence of a fine deposit of calcium in the skin also. Although the majority of the deposits showed a bilateral symmetry, their locations were such that trauma could be the etiologic factor in producing conditions that favor calcification. The deposit on the forearm followed a definite and severe blow in the exact location. The buttocks over the ischial tuberosities and the areas above the greater trochanters receive constant trauma, particularly in a very thin person, as was the patient in the case reported. It is of interest that this condition should be found in a patient with a marked atrophic type of chronic arthritis. The density of the bones is much decreased, even though the skin and subcutaneous tissues contain deposits of calcium. The chemical composition of the blood and the basal metabolism do not appear to have any relation to the local condition, unless the low basal metabolic rate and anemia give a low carbon dioxide content in the tissues. Conditions favorable to a deposit of calcium salts would then be much more readily created. The author believes that the severe grade of anemia is probably a part of the long standing arthritis.

Arkansas Medical Society Journal, Little Rock

28: 51-66 (Aug.) 1931

Radiation in Carcinoma of Breast. I. H. Lockwood, Kansas City, Mo. —p. 51.
Clinical Symptoms in Prognosis of Tuberculosis. J. D. Riley, State Sanatorium.—p. 55.

Georgia Medical Association Journal, Atlanta

20: 294-334 (Aug.) 1931

Etiology of Mental Diseases. G. L. Echols, Milledgeville.—p. 294.
Acute Appendicitis in Elderly Patients. W. S. Goldsmith, Atlanta — p. 299.
Neurologic Symptoms of Pernicious Anemia. W. A. Smith, Atlanta. —p. 304.
Pencil-Cap in Left Lower Bronchus: Removal After Six Months. M. Equen, Atlanta.—p. 319.
Sacro-Iliac Pain. L. Thornton, Atlanta.—p. 320.
Cancer: II. J. L. Campbell, Atlanta.—p. 323.
Id.: III. J. L. Campbell, Atlanta.—p. 324.

Johns Hopkins Hospital Bulletin, Baltimore

49: 61-120 (Aug.) 1931

Case of Progressive Neural Muscular Atrophy. S. J. Weinberg, Baltimore.—p. 61.
An Articulation in Large Renal Calculus. R Baker, Baltimore —p. 79
*Importance of Circulatory Balance in Survival of Replanted Limbs. F. L. Reichert, San Francisco.—p. 86.
Derivation of Encapsulated Forms from Nonencapsulated Hemolytic Streptococci. F. B. Jennings, Jr., Baltimore.—p. 94.
On Experimental Production of Superfetation. G. B. Wislocki and F. F. Snyder, Baltimore.—p. 103.
Further Observations on Experimental Production of Ovulation in Rabbit. F. F. Snyder and G. B. Wislocki, Baltimore.—p. 106

Circulatory Balance in Replanted Limbs.—Reichert describes a replantation experiment that offered a satisfactory method of studying the relative importance of the vascular systems (arterial, venous and lymphatic), and their interdependence in maintaining adequate circulatory balance. After replantation, regeneration of the arteries was demonstrated on the second and third days, of the veins on the fourth and fifth days, and of the lymphatics as early as the fourth postoperative day. Experience with wounds in the World War has definitely indicated that in arterial ligation the incidence of gangrene may be diminished by the simultaneous occlusion of the accompanying vein. By means of the experimental replantation of limbs, the effect of simultaneous ligation of the artery or vein alone has been established chronologically. Gangrene does not develop if the main vein is ligated five or more days after replantation, whereas the artery alone cannot be safely occluded until the fourteenth day. The time interval essential to a safe arterial ligation can be diminished to seven days when a simultaneous ligation of artery and vein is performed. It is significant that the survival of the extremity after arterial ligation depends on the lapse of only a few hours before occlusion of the accompanying vein.

Journal of Immunology, Baltimore

21: 85-170 (Aug.) 1931

*Skin as an Immunologic Organ: Results of Experimental Investigations. L. Tuft, Philadelphia.—p. 85.
Loss of Immune Substances from Body: III. Diphtheria Antitoxin in Human Sweat. J. M. Neill, E. L. Gaspari, R. A. Mosley and J. Y. Sugg, Nashville, Tenn.—p. 101.
Quantitative Aspect of Hypothetical Incorporation of Injected Antigen in Resulting Antibody. S. B. Hooker and W. C. Boyd, Boston.—p. 113.
Comparison of Methods for Determination of Potency as Observed on Group of Horses Immunized Against Diphtheria. G. F. Leonard, New Brunswick, N. J.—p. 117.
On Mechanism of Toxin-Antitoxin Reactions. J. Freund, Philadelphia. —p. 127.
Parenteral Denaturization of Foreign Proteins: V. Effect of Starvation T. H. Boone, San Francisco.—p. 139.
Rapid and Simplified Method for Conducting the Agglutinin Absorption Test of Hemolytic Streptococci. Sophie Spicer and Rose Rachstein, New York.—p. 141.
Agglutinin Production in Suprarenalectomized Rats. Devorah Khorazo, New York.—p. 151.
Heredity of Agglutinogens M and N of Landsteiner and Levine: II. Theoreticostatistical Considerations. A. S. Wiener, Brooklyn.—p. 157.

Skin as Immunologic Organ.—During the course of some experiments in serum sickness, Tuft observed that the skin seemed to possess an unusual capacity for sensitization to horse serum, this sensitization being accompanied by the production of anaphylactic antibodies, and these experiments suggesting the possibility that the skin may act as an important immunologic organ. Numerous clinical observations bear out the close relationship existing between the skin and processes of immunity in infectious and allergic diseases. These have been further substantiated by many experimental contributions reported in the past few years in the foreign literature, which appear to indicate not only that the skin may have the power to form antibodies but that such antibodies may be specific and that the ability to form such antibodies resides specifically in the skin. The author's experiments do not bear out the latter view, at least for antibacterial antibodies, for from a comparison of the antibody response after intradermal, subcutaneous, intramuscular and intravenous injection of mixed typhoid vaccine, both in man and in the lower animals, it would appear that, though it is possible that the skin participates actively in antibody production, it does not carry out this function exclusively in respect to other tissues or organs. The marked antibody response, particularly after local injection, can be best explained on the basis of a local tissue stimulation of the cells of the reticulo-endothelial system, these cells being particularly abundant in the skin. That the active antibody response after intradermal injection may be due in part to a slower absorption of the antigen is entirely possible, although this process may in turn allow for local fixation of a greater amount of antigen and thus greater local stimulation of antibody. The conception of the skin as an important immunologic organ explains in part the satisfactory results of those nonspecific mechanical therapeutic measures employing the skin surface for stimulation and suggests the possibility of utilizing the skin, therapeutically, for measures of specific active immunization in infectious and allergic diseases. It also substantiates the rationale of the various measures of cutanotherapy advised by the French and Germans, and the author's satisfactory experience with typhoid vaccine used intradermally is further evidence of the efficacy of such methods. These could well be extended to other bacteria, particularly such skin-affecting organisms as the pyogenic cocci, with good results.

Journal of Lab. & Clinical Medicine, St. Louis

16: 1047-1150 (Aug.) 1931

Bronchial Asthma: Its Etiology and Control. A. H. Rowe, Oakland, Calif.—p. 1047.
Action of Sodium Ethyl Propyl-Methyl-Carbinyl Barbiturate (Pentobarbital Sodium). E. E. Swanson and H. A. Shonle, Indianapolis. —p. 1056.
Clinical Comparison of Acetylsalicylic Acid Analgesia With and Without Magnesium Oxide F. A. Simon, Louisville, Ky.—p. 1064.
Influence of Ethyl Alcohol on Gastric Absorption of Phenol in Rabbits. F. L. Dunn and A. M. Perley, Omaha.—p. 1066.
Comparison of Methods Used in Study of Anaphylaxis. B. Ratner and Helen L. Gruehl, New York.—p. 1069.
Electrocardiographic Studies on Chick Embryo Hearts: I. Technic for Recording Electrical Changes in Isolated Chick Embryo Hearts. H Pollack, Boston.—p. 1080.
Case of Occlusion of Both Coronary Arteries with Rupture of Auricle. J. R. Lisa and A. Ring, New York—p. 1083.
Removal of Serum Protein by Means of Electricity. A. Tasman and A. C. Brandwijk, Utrecht, Holland.—p. 1087.

Journal of Nervous & Mental Disease, New York

74: 137-264 (Aug.) 1931

Cerebral Arteriovenous Aneurysms: Case. F. P. Moersch and J. W. Kernohan, Rochester, Minn.—p. 137.
*Convulsive Manifestations in Huntington's Chorea. J. Notkin, New York.—p. 149.
Emergency Treatment of the Alcoholic. I. D. Williams, New York.—p. 161.
Report of Case of Narcolepsy, with Cataplectic Attacks. F. N. Anderson, Los Angeles.—p. 173.
Pelizaeus-Merzbacher Disease (Familial Centrolobar Sclerosis): Clinical Findings in Two Cases. Yetta Scheftel, Chicago.—p. 175.

Huntington's Chorea.—Notkin reviews cases of Huntington's chorea with convulsive manifestations reported in the literature and describes one personal observation in detail. The presence of various accidental pathologic changes in addition to the usual pathology of Huntington's chorea in the reviewed cases excludes the possibility of a definite localization for the origin of the attacks. The same may be said for the cases complicated by alcoholism, head trauma and circulatory disturbances. No consistent theory can be offered for the mechanism of the convulsions even in the anatomically pure cases, in view of the presence of pathologic changes in the striatum and the cortex. The lack of similarity in the type of attacks offers the same difficulty in the matter of localization. The organic process in Huntington's chorea which is probably active for years before the appearance of motor and mental manifestations may, however, prepare the terrain for the convulsive mechanisms.

Laryngoscope, St. Louis

41: 523-589 (Aug.) 1931

Neuro-Otologic Examination in Correlation with Brain Surgery. J. C. Keeler, Philadelphia.—p. 523.
Report of Case of Acute Diffuse Labyrinthitis. L. M. Hubby, New York. —p. 543.
O. M. P. C., Mastoidectomy, Septicemia: Jugular Ligation; Recovery; Case. J. A. MacIsaac, New York.—p. 545.
Case of Simple Mastoidectomy Followed by Cerebellar Abscess: Operation, Recovery. H. C. Luke, New York.—p. 547.
Mastoidectomy Complicating Cervical Pott's Disease: Case. A. E. Warren, New York.—p. 551.
Modified Radical Mastoid Operation, Followed by Radical Mastoid Operation with Severe Intracranial Symptoms: Case. J. McCoy, New York. —p. 554.
Fibrosarcoma of Dura, Middle Fossa: Radical Mastoid Operation; Case. E. M. Pope, New York.—p. 555.
Bilateral Perceptive Deafness of Less Common Etiology: 1. Cincophen and Salicylate. 2. Alcohol. 3. Atypical Otosclerosis. V. K. Hart, Charlotte, N. C.—p. 557.
Deformity of Ears and Nose from Lupus Erythematosis Benefited by Intracutaneous T. B. Inoculations: Case.—p. 562.
Scarlet Fever—Sinusitis. F. V. Gowen and T. F. Gowen, Philadelphia. —p. 564.
Retropharyngeal Abscess: Diagnosis and Treatment. W. K. Kistler, Philadelphia.—p. 568.

Michigan State M. Soc. Journal, Grand Rapids

30: 669-738 (Sept.) 1931

Vomiting of Pregnancy. R. W. Wilkins, Ann Arbor.—p. 669.
Postnatal Care. C. E. Toshach, Saginaw.—p. 673.
Roentgen Diagnosis in Gynecology and Obstetrics. I. F. Stein, Chicago.—p. 675.
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Relation of Pelvic Inclination, Lumbar Index and Posture to Obstetrics. C. Swanson, Detroit.—p. 684
Trichomonas Vaginalis Vaginitis. G. Kamperman, Detroit.—p. 686.
Dermoid Cysts of Ovary: Fifty Cases H. A. Furlong, Pontiac.—p. 688.
"Avertin" in Obstetrics and Gynecology. J. M Pierce, Ann Arbor. —p. 691.
Eclampsia—Preventable Disease. E. B. Andersen, Grand Rapids.—p. 693.
Obstetric Morbidity. P. W. Willits, Grand Rapids.—p. 697.
Famous Men in Medical History: Early American Medicine and Dr. Z. Boylston. W. H. Steffensen, Ann Arbor.—p. 702.

New England Journal of Medicine, Boston

205: 421-470 (Aug 27) 1931

Rupture of Male Urethra. G. G. Smith, and E. R. Mintz, Boston. —p. 421.
Early Diagnosis and Early Treatment of Arteriolar (Essential) Hypertension. D. Ayman, Boston.—p. 424.
End-Results in Operative Treatment of Inguinal Hernia: One Hundred and Fifty Cases at Lahey Clinic. R. B. Cattell and C. Anderson, Boston.—p. 430.
Spontaneous Retroperitoneal Hemorrhage. F. W. Marlow, Jr., Boston. p. 432.
Conization of Cervix Uteri with High Frequency Current: Use of Cutting Current in Treatment of Endocervicitis. B. F. Boland, Boston.—p. 434.
Tuberculin Skin Sensitivity in One Thousand Orthopedic Cases. G. De N. Hough, Jr., Springfield, Mass.—p. 437.
Note on Early History of Contraception in America. N. E. Himes, Worcester, Mass.—p. 438.
Massachusetts Medico Legal Society: Some Psychiatric Aspects of Crime. W. Overholser, Boston.—p. 441.
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Influence of Inoculated Human Serum on Compatibility Tests. H. E. Smiley, Providence, R. I.—p. 447.

205: 471-516 (Sept. 3) 1931

Report of Unusual Foreign Body in Female Bladder. E. J. O'Brien, Boston.—p. 471.
Ectopic Ureteral Opening, Absence of Half of Trigon and Hypoplastic Kidney: Case. C. S. Swan, Boston.—p. 471.
Polycystic Kidneys. A. Riley, Boston.—p. 473.
Prevention of Perivesical Cellulitis and Suppuration Following Suprapubic Cystostomy by Use of Kidd's Perforator and Introducer. V. Vermooten, New Haven, Conn.—p. 473.
Embryonal Adenomyosarcoma of Kidney in Adults. R. H. Jenkins, New Haven, Conn.—p. 479.
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Soranus on Birth Control (Second Century A. D.). N. E. Himes, Worcester, Mass.—p. 490.
Industrial Aspects of Traumatic Surgery. H. C. Marble, Boston.—p. 492.
Coronary Occlusion and Angina Pectoris. G. Blumer, New Haven, Conn.—p. 495.
Nontraumatic Gas Bacillus Infection in Neck of Child Following Middle Ear Infection. J. A. Hunter, Dover, N. H.—p. 498.
Auricular Fibrillation Following Massive Dose of Chloral. D. G. Smith, Nashua, N. H.—p. 499.

205: 517-562 (Sept. 10) 1931

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What We Have Learned in Massachusetts From the Ten-Year Program. D. Zacks, Boston.—p. 525.
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Embryonal Carcinoma of Testis: Three Years' Cure. S. M. Fitchet and L. B. Morrison, Boston.—p. 542.

New Orleans Medical & Surgical Journal

84: 95-162 (Aug.) 1931

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Treatment of Infections of Mastoids of Infants When There is no Sign of Destruction Present, with Fractional Doses of Roentgen Rays. Amédée Granger, New Orleans.—p. 111.
Conservative Gynecology: Its Rationale and Its End-Results. C. J. Miller, New Orleans.—p. 117.
Senile Vulvitis and Vulvovaginitis, with Especial Reference to Trichomonas Vaginalis Infection. L. A. LeDoux, New Orleans.—p. 121.
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Northwest Medicine, Seattle

30: 349-388 (Aug.) 1931

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Occupational Therapy and Rehabilitation, Baltimore

10: 207-279 (Aug.) 1931

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Some Problems of Organization of Occupational Therapy in a Public Tuberculosis Sanatorium. Margaret Biggerstaff, Des Moines, Iowa. —p. 251.
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Ohio State Medical Journal, Columbus

27: 601-680 (Aug.) 1931

Simple Ulcer of Intestine. S. C. Lind, Cleveland.—p. 621.
Head Injuries: Extracranial, Cranial and Intracranial. E. J. Brown, Cleveland.—p. 627.
Spinal Anesthesia: Subarachnoid Radicular Conduction Block. P. D. Scofield, Columbus.—p. 634.
Poisonous Snake Bite; Etiology and Treatment with Case Report. W. G. Hartnett, Toledo.—p. 636.
Lymphocyte in Lymphatic Leukemia with Notes on Prognosis and Treatment. B. K. Wiseman, Columbus.—p. 639.

Oklahoma State Medical Assn. Journal, Muskogee

24: 261-288 (Aug.) 1931

Treatment of Postencephalitic Parkinsonian Syndrome. F. M. Adams and P. L. Hays, Vinita.—p. 261.
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Pennsylvania Medical Journal, Harrisburg

34: 765-852 (Aug.) 1931

Symposium on Tuberculosis of Genito-Urinary Tract: Pathology and Pathogenesis of Renal Tuberculosis. H. Fox, Philadelphia.—p. 765.
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Genital Tuberculosis. I. L. Ohlman, Pittsburgh.—p. 779.
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Symposium on Sympathectomy: Anatomicophysiologic Considerations of Sympathectomy and Ramisection. J. P. Schaeffer, Philadelphia.—p. 786.
Surgical Application of Sympathectomy. F. C. Grant, Philadelphia.—p. 792.
Principles Underlying Treatment of Various Forms of Chronic Sinusitis. G. C. Kneedler, Pittsburgh.—p. 798.

Southern Medical Journal, Birmingham, Ala.

24: 659-740 (Aug.) 1931

Diseases of Nasal Accessory Sinuses in Children. D. D. Martin and J. C. Dickinson, Tampa, Fla.—p. 659.
Gross and Microscopic Pathology of Maxillary Sinus. R. Harris, Jackson, Miss.—p. 662.
New (Plaster Yoke) Dressing for Fracture of Clavicle. R. W. Billington, Nashville, Tenn.—p. 667.
Acute Lymphatic Leukemia in Childhood: Case with Autopsy. J. H. Park, Jr., Houston, Texas.—p. 670.
Renal Calculi Following Fracture of Spine. S. Wallenstein, Baltimore. —p. 675.
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Diagnosis and Effects of Drug Therapy on Course of Gonorrhea. W. H. Toulson, Baltimore.—p. 696.
Surgical Aspects of Gonorrheal Infections. J. R. Caulk, St. Louis, Mo. —p. 698.
Gumma of Brain. G. B. Fletcher, Hot Springs National Park, Ark. —p. 703.
The Normal Syphilitic. T. W. Murrell, Richmond, Va.—p. 705.
Streptococci from Blood Cultures in Arthritis. G. F. Klugh, Atlanta, Ga. —p. 706.
Acute Gallbladder Disease. R. M. Howard, Oklahoma City.—p. 709.
Retrobulbar Neuritis. R. J. Warner, Nashville, Tenn.—p. 716.
Cerebrospinal Fluid Pressure in Normal and Pathologic States. A. L. Skoog, Kansas City.—p. 720.
Cesarean Section in Houston, Texas: Statistical Study. R. A. Johnston and F. B. Smith, Houston, Texas.—p. 725.
Full Term Extra-Uterine Pregnancy with Both Mother and Baby Living and Well. E. V. Caldwell, Huntsville, Ala.—p. 729.
Hay-Fever and Asthma Due to Red Cedar (Juniperus Virginiana) and to Mountain Cedar (Juniperus Sabinoides). I. S. Kahn and Emma M. Grothaus, San Antonio, Texas.—p. 729.

Tennessee State Medical Assn. Journal, Nashville

24: 287-326 (Aug.) 1931

Infectious Diarrhea: Use of Bacteriophage and Special Diet. F. T. Mitchell, Memphis.—p. 287.
Regional Anesthesia by Nerve Block Method in Reduction of Fractures and Dislocations. R. K. Hollingsworth, Jackson.—p. 294.
Management of Eclampsia. J. R. McCord, Atlanta.—p. 299.
Problem of Pulmonary Tuberculosis in High School Age Group. J. B. Naive, Knoxville.—p. 304.
Back Injuries. J. T. Moore, Algood.—p. 311.

Virginia Medical Monthly, Richmond

58: 283-352 (Aug.) 1931

Mental Diseases from Standpoint of General Practitioner. J. H. Bell, Colony.—p. 283.
Small Town Hospital. B. F. Eckles, Galax.—p. 286.
Atypical Problems in Injection Treatment of Varicose Veins. E. Lowenberg, Norfolk.—p. 289.
Diagnosis of Pericardial Effusions. W. M. Yater and S Dessoff, Washington, D. C.—p. 299.
Lateral Sinus Thrombosis Complicating Mastoiditis. M. H. Williams, Roanoke.—p. 306.
Streptococcus Viridans Endocarditis—A Treatise. A. D. Parker, Norfolk. —p. 312.
Office Treatment of Early Enlarged Prostates. W. D. Goodman, Washington, D. C.—p. 314.
Three Years' Experience with Goat's Milk in Infant Feeding. D. P. West, Norfolk.—p. 315.
Early Diagnosis of Syphilis. W. W. S. Butler, Roanoke.—p. 319.
Ureteral Meatotomy by Fulguration and Incision: Case. C. I. Sease, Richmond.—p. 320.
Study of Normal Function and Pathologic Conditions of Thyroid Gland. J. L. Rawls, Suffolk.—p. 321.
Rôle of Sepsis as Etiologic Factor in Agranulocytosis. H. W. Potter, Newport News.—p. 324.
Survey of Four Thousand Consecutive Wassermann Tests in Children. L. T. Royster, University.—p. 326.
Treatment of Eclampsia. A. L. Carson, Jr., Fairfax.—p. 327.
Hypertrophy of Thymus Gland in Infants: Case. L. E. Hayes and N. B. Jeter, Covington.—p. 331.

West Virginia Medical Journal, Charleston

27: 337-384 (Aug.) 1931

Traumatic Kidney Surgery. R. D. Gill, Wheeling.—p. 337.
Spastic Colitis. S. J. Morris, Morgantown.—p. 342.
Suppurative Appendicitis. R. J. Wilkinson, Huntington.—p. 346.
Management of Diabetic Coma. F. A. Brown, Huntington.—p. 350.
Treatise on Fractures. R. H. Jeffrey, Uniontown, Pa.—p. 352.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 369-408 (Aug. 29) 1931

*Breech Presentation: Fetal Mortality and Injuries. G. F. Gibberd—p. 369.
Antenatal Treatment of Breech Presentations. Gertrude Dearnley.—p. 371.
Management of Breech Labor. A. Bourne—p. 372.
Progress of Anesthesia. R. J. Clausen.—p. 374.
*Indications for Phrenic Avulsion in Bronchiectasis. W. G. Oakley—p. 378.
*Infantile Diarrhea. A. V. Neale.—p. 382.
*An Atropine Test in Asthma. Marjorie Gillespie.—p. 384.

2: 409-480 (Sept. 5) 1931

Preliminary Sciences in Medicine: Plea for New Outlook. R. J. S. McDowall.—p. 409.

Breech Presentation: Fetal Mortality and Injuries.—Gibberd believes that in view of the fact that the fetal mortality rate in breech labor is usually underestimated it seems a pity that a classification which tends to hide the dangers has been so widely adopted. It would seem better to regard a "complicated" breech as one in which some additional obstetric abnormality is present, and under the term "uncomplicated" to include primiparas and cases in which extension of the arms occurs. On this basis of classification the gross mortality rate for uncomplicated cases is about 30 per cent for primiparas and about 20 per cent for multiparas, and after making all possible allowances fetal death rates of 28 and 15 per cent, respectively, can be taken as the minimum estimate of the dangers associated with the breech labor itself. Of nonfatal accidents to the fetus, injuries to the limbs occur in about 5 per cent of cases. Early diagnosis of the injury is all important, since early treatment is usually rewarded by excellent recovery. The late results of nonfatal intracranial injuries are at present uncertain, and sufficient reliable observations are not yet to hand to justify one in forming definite views.

Phrenic Avulsion in Bronchiectasis.—According to Oakley, phrenic avulsion in experienced hands is a safe operation, and the complications are more to be feared in theory than in practice. Only in strictly basal and unilateral cases of bronchiectasis can phrenic avulsion be reasonably expected completely to relieve the symptoms. Improvement is to be expected in unilateral bronchiectasis in which the lesions are confined to the bases and not advanced on the better side. In unilateral bronchiectasis in which the lesion extends into upper or mid zones, temporary improvement is the rule, but relapse must be expected unless thoracoplasty is performed. In bilateral basal bronchiectasis with lesions in upper mid zones, little benefit is to be hoped for from unilateral diaphragmatic paralysis. As a preliminary to thoracoplasty phrenic avulsion should always be performed but should not be allowed to shelve the larger operation in event of a brilliant but temporary cure.

Infantile Diarrhea.—Neale states that the profound and complex upset of tissue metabolism consequent on the dehydration, ketosis and toxemia renders the treatment of infantile diarrhea a matter of urgency. First class nursing attention is essential, and the child must be handled with meticulous care. Fluids must be introduced into the body to replace the excessive loss occurring. In a mild case all milk should be stopped for twenty-four hours and replaced by the use of pure water, one-fourth strength physiologic solution of sodium chloride or weak tea. Ringer's solution of 2 per cent pure dextrose solution by this route is indicated. All these substances do not require digestion and are absorbed rapidly in the upper part of the small bowel, thus affording rest to the lower. Gentle rectal lavage with warm physiologic solution of sodium chloride during this period will relieve gaseous distention and afford comfort to the patient. In severe cases, especially with associated vomiting, sterile fluids must be given by parenteral routes. Rest to the alimentary tract and the injection of fluids parenterally allay the diarrhea and lessen the tissue dehydration, and afford establishment of normal kidney and hepatic functioning to aid in the detoxicating and eliminative processes. Overcoming the problem of conveying water and dextrose to the blood and the tissues plays a great part in the therapy. Water is the drug, *par excellence*, in these disorders. Sterile physiologic solution of sodium chloride can be introduced into the lax subcutaneous tissues in the proportion of about 10 cc. per pound of body weight once or twice during twenty-four hours. In expert hands it is a simple matter to introduce, by slow injection, 5 per cent dextrose solution into the superior longitudinal sinus at the anterior fontanel, or in some cases it may be more convenient to inject the fluid into the internal saphenous vein. Intraperitoneal injection of solution of sodium chloride or dextrose solution is a useful method also. The methods may be combined in individual cases. It is a matter of vast importance to use freshly made pure dextrose solution for these procedures. Blood transfusion is an invaluable measure in some cases and often seems to determine the recovery of the most serious clinical case of infantile diarrhea and dehydration. Whole blood from a suitable donor is given, 15 cc. per pound of body weight being a useful guide, but slow introduction into the longitudinal sinus or a vein is essential, as too rapid injection may cause overdistention of the right side of the heart. A matter of some importance, often overlooked, is the loss of protein contained in the fluid escaping from the body by way of the intestine, even in stools in which blood is not detectable. The efficiency of blood transfusion may have a relationship to this. Parenteral infection must be dealt with, and everything done to check it. Pus should be evacuated when possible. Antidysentery serum given intramuscularly is efficacious in some cases of acute dysenteric ileocolitis. The use of drugs forms a small part in the management of infantile diarrhea. Morphine is dangerous, but small doses of belladonna may be used to check intestinal spasm and pain. On account of the ease with which the body temperature is affected in the infant, a warm room with average humidity is a point of importance. In some severe cases the thermoregulatory mechanism appears to be thrown out of gear, and in such instances the placing of the infant in an open self-regulating warm incubator of the Hess type is of distinct value. Since the return of intestinal digestive power is probably slow, the diet in the recovery stages must be carefully controlled—always remembering that protein is probably the most easily digested and fat the least so at this age. Breast milk, if available at this stage, is of high value. Easily assimilable forms of carbohydrates and buttermilk foods are usually satisfactory until the child gradually reassumes tolerance to a more full and varied diet.

An Atropine Test in Asthma.—Gillespie calls attention to the fact that the usual method of administering atropine in asthma is as tincture of belladonna in a mixture to be taken by the mouth, but the unpleasant dryness of the mucous membranes and the effect on the pupil prevent its continuous use. As a method of estimating the part played by nervous stimuli in inaugurating bronchospasm, a full dose of atropine might be injected subcutaneously at the onset of an attack. In those cases in which contraction of the bronchial muscle is due to direct chemical stimulation of the muscle, atropine would be expected to have no effect, whereas in the truly nervous type the attack would be aborted. In this way the patients whose attacks are due to psychic stimuli alone could be differentiated from those who owe their symptoms to a fundamental chemical alteration of the blood.

Glasgow Medical Journal

35: 81-136 (Aug.) 1931

Report of Asthma Research at Stobhill Hospital, Glasgow. J. Adam. —p. 81.
Mass Experiment in Treatment of Syphilis. R. J. Peters.—p. 97.
Outbreak of Chickenpox in Residential School for Deaf Due to Case of Herpes Zoster. C. M. Smith.—p. 115.

Indian Medical Gazette, Calcutta

66: 423-482 (Aug.) 1931

*Further Observations on Heart Disease in the Punjab. T. A. Hughes and M. Yusuf.—p. 423.
Manifestations of Chronic Yaws. G. H. Fitzgerald and N. C. Dey. —p. 425.
Notes on Diagnosis and Treatment of Ulcus Tropicum. Flora R. Innes. —p. 430.
Case of Thrombo-Angiitis Obliterans. M. N. Pai.—p. 431.
Note on Output and Distribution of Urinary Nitrogen in Normal Punjabi. T. A. Malik and P. N. Sahai.—p. 433.
Nature of Bacterial Substance of an Oral Antidysenteric Vaccine. R. C. Wats and W. J White.—p. 435.
Application and Use of Larvicides. K. Bose.—p. 436.
Quinine Prophylaxis and Other Notes on Malaria. J. F. James.—p. 440.

Heart Disease in the Punjab.—During the past year, Hughes and Yusuf have noted in the Punjab the occasional occurrence of uncomplicated aortic regurgitation of rheumatic origin. In a series of twenty-one cases of valvular disease there were two patients, aged 18 and 22 years, respectively, with well marked aortic incompetence who gave typical histories of rheumatism but who did not present evidence of a mitral lesion. The aortic leak in each case was detected in the course of routine examination, the patients having been admitted to the hospital on account of lobar pneumonia and chronic malaria, respectively. Their ages excluded acquired syphilis as a cause of the valvular defect, as syphilitic aortitis occurs on an average twenty years after infection. Nor were there any symptoms or signs of congenital syphilis. The Wassermann reaction was negative in both.

Irish Journal of Medical Science, Dublin

68: 337-482 (Aug.) 1931

Report of Rotunda Hospital. B. Solomons, G. S. Smyth, R. V. Dowse, C. L. McDonogh and B. Crichton.—p. 337.
Clinical Report of Coombe Lying-In Hospital, 1930. T. M. Healy, R. M. Corbet and P. Brangan.—p. 416.
Clinical Report of National Maternity Hospital. P. T. McArdle.—p. 443.

Journal of Laryngology and Otology, Edinburgh

46: 589-660 (Sept.) 1931

Eruptions Involving the External Auditory Meatus. H. W. Barber. —p. 589.
Cerebellar Abscess in Childhood: Two Cases in Which Recovery Followed Operation. D. Guthrie.—p. 604.
Anesthetics in Relation to Throat, Nose and Ear Cases. J. W. Leitch. —p. 612.

Journal of State Medicine, London

39: 497-558 (Sept.) 1931

Town and Country Planning in Relation to Health and Amenity. P. Abercrombie.—p. 497.
Encouragement of Public Health Activities as Essential Task of Town Planning and Housing. O. Weigert.—p. 503.
Garden City Principle and Its Relation to Growth of Cities. E. B. Carter.—p. 510.
Coal Miners and Tuberculosis. S. L. Cummins.—p. 526.
Some Aspects of Industrial Occupation Which Especially Concern the Medical Officer of Health. E. W. Hope.—p. 537.
Asbestos Dust and Asbestosis Bodies from Lungs of an Asbestos Worker. W. E. Cooke.—p. 544.
Infant Welfare from Social Hygiene Point of View. K. Coerper.—p. 549.

Kenya & East African Medical Journal, Nairobi

8: 123-148 (Aug.) 1931

Some Remarks on General Health of School Children in Kenya. G. M. Hargreaves.—p. 124.
Incidence and Character of Syphilis and Yaws in Kenya. J. L. Gilks. —p. 131.
Case of Kenya Typhus in Mumias Native. H. C. Trowell.—p. 142.

Practitioner, London

127: 321-411 (Sept.) 1931

Value of Postgraduate Medical Education. H. Simson.—p. 321.
Postgraduate Education in London. R. S. Stevenson.—p. 327.
Treatment of Pulmonary Suppuration. A. J. Scott Pinchin and H. V. Morlock.—p. 335.
On Urinary Obstruction. J. B. Macalpin.—p. 349.
Diathermy in Urinary Surgery. A. Jacobs.—p. 359.
Ludwig's Angina. H. Bailey.—p. 365.
Diagnosis and Treatment of Coronary Thrombosis. G. S. Haynes.—p. 371.
Contribution to Study of Intestinal Infections. J. S. Dick.—p. 381.
Use of Artificial Pneumothorax in Treatment of Pleurisy in Pneumonia. A. B. Taylor.—p. 389.
Wisdom Tooth and Associated Troubles. J. D. Kidd.—p. 397.
Tuberculosis and Goat's Milk. R. I. Pitt.—p. 399.

South Africa M. Assn. Journal, Cape Town

5: 477-512 (Aug. 8) 1931

Diagnosis of Tumors of Spinal Cord. R. Geerling.—p. 479.
Diseases and Injuries of Carpal Bones. L. Herzenberg.—p. 481.
New South African Anopheline. B. de Meillon.—p. 482.
Intracranial Tumors. J. C. Fouche.—p. 483.
Drabok (Lolium Temulentum) Poisoning. J. Muir.—p. 485.
Insanity in Some British Poets. D. K. Gillis.—p. 486.

Archives de Médecine des Enfants, Paris

34: 461-524 (Aug.) 1931

*Acute Pulmonary Edema in Measles. P. Nobécourt and J. Lereboullet.—p. 461.
*Invariability of Incubation Period in Measles. P. Lereboullet and P. Baize.—p. 475.
*Incubation Period in Measles. P. Lereboullet and P. Baize.—p. 475.
Physical Chemistry of Blood. C. C. Ducco.—p. 484.
Prenatal and Natal Clinics at Saint-Ouen Dispensary. R. Daunay.—p. 490.

Acute Pulmonary Edema in Measles.—Nobécourt and Lereboullet consider bronchopneumonia the chief complication of measles; its principal varieties, particularly the hyperacute form of suffocating catarrh, have been described extensively. Acute edema of the lungs is a complication that is less known but not exceptional—the authors have observed four cases in six months. It is often confused with hyperacute bronchopneumonia. Acute edema merits attention since, unlike hyperacute bronchopneumonia, it is amenable to treatment administered early enough. Pulmonary edema in measles is particularly frequent during the seasons for the respiratory group of diseases and influenza epidemics. That acute pulmonary edema occurs in the course of infectious diseases of infancy has been known a long time. Its onset in measles varies; usually it appears at the acme of the disease period, the second day, but at times it is not noted until the sixth day of the eruption in cases in which the measles has seemed to be evolving normally. It is characterized clinically by dyspnea, cyanosis, fitful coughing, frothy saliva, accelerated pulse and rising temperature. An exaggerated sound in the thorax due to the emphysema, feeble respiratory sounds, râles in both lungs, accelerated heart action—such a clinical picture should be feared. This condition is followed by exhaustion and the patient dies of asphyxia and cardiac insufficiency. It is the belief that the edematous and inflammatory conditions coexist. Measles is a septicemia caused by the virus morbilli. Infection takes place in the respiratory tract with inflammation of the nasal, pharyngeal, tracheal and broncheal mucosa; hence the congested and edematous conditions of the lungs. Bacteriologic research is necessary to establish the respective rôle of measles and secondary infection in the etiology of acute pulmonary edema. If early edema may depend on virus morbilli, later edema may be caused by agents of secondary infection. The authors discuss various hypotheses and mention the possibility of local predisposition. Treatment should consist of clearing the infiltrated or congested lungs, strengthening the heart and encouraging blood circulation. Bleeding, hydrotherapy, heart stimulation and oxygen therapy are discussed. Oxygen therapy seems to the authors to be most effective but may be combined with the other methods. Constant vigil by competent attendants is emphasized.

Incubation Period in Measles. — Lereboullet and Baize report twenty-nine cases, paying particular attention to the length of the period of incubation, increase in temperaure, loss of weight, and polynucleosis of the blood. Their observations lead them to the following conclusions: The incubation of measles is not always silent as it is commonly believed. Among the numerous symptoms ascribed to this period, some are rare or nonexistent; others, as the elevation of temperature or polynucleosis of the blood, are more important. It is doubtful, however, whether these symptoms can be of sufficient help in the early diagnosis of measles; and, being inconstant, there is always the risk of overlooking them. But even if the symptoms of the incubation period are of slight prophylactic value, their physiopathologic interest is undeniable. It is believed that, beginning with the onset of the infection by the measles organism, there is a struggle and a slight but distinct reactive phenomena. After an interval of some twelve days this struggle gives rise to more definite symptoms of the period of invasion with high fever, oculonasal catarrh and the distinctive exanthems. Why is the incubation period so remarkably fixed? One can agree with Jürgensen that the measles organism itself cannot begin its devastating work until it is sufficiently developed to invade the entire system. One can also agree with Pirquet that in the incubation period a lapse of time (from eight to twelve days) is necessary for the production of antibodies; and when these appear in sufficient quantity, there is microbic lysis, production of toxins and consequent fever, exanthems and leukopenia, with the measles syndrome confirmed. Aside from these hypotheses, what the authors wish especially to stress, beginning with the first days of the period of incubation, is the clinical manifestations, fever, or the hematologic manifestations, polynucleosis, that mark the onset of the infectious disease.

Lyon Chirurgical

28: 385-528 (July-Aug.) 1931

Physiologic Problem of Cholecystectomy. P. Mallet-Guy and F Anthome.—p. 385.
*Treatment of Ankylosing Polyarthritis by Parathyroidectomy R Leriche and A. Jung.—p. 408.
Secondary Tumors of Pelvic Bones. M. L. Tavernier.—p 438.

Ankylosing Polyarthritis.—Leriche and Jung report the results of studies carried out in twenty cases of ankylosing polyarthritis, which they divide into three groups thus: (1) cases of infectious or gouty origin, which always have a normal calcemia; (2) cases that are of neither infectious nor gouty origin and are sometimes accompanied by hypercalcemia (these cases, in the authors' opinion, are caused by hyperparathyroidism), and (3) those that are of neither infectious nor gouty origin and which are accompanied by hypocalcemia or normal calcemia. Neither the roentgenogram nor the distribution of ankyloses allows one to differentiate these groups. Regardless of the etiology, the lesions may be identical. Parathyroidectomy improves the polyarthritides with hypercalcemia, lowering at the same time the calcium level of the blood. It does not have a favorable effect on the polyarthritides with a normal calcemia, although it decreases the amount of calcium in the blood. It seems certain that local calcic (osteo-articular) changes are not in direct relation with the amount of total calcium in the blood serum because the anatomic and roentgenologic syndrome of ankylosing polyarthritis remains the same regardless of the cause and regardless of whether it is accompanied by hypercalcemia, hypocalcemia or by normal calcemia. The local calcic changes and the variations in the calcium content of the blood are two signs that may or may not coexist. Laws pertaining to their reciprocal relations are not known. Nevertheless the following reasons seem to indicate that there exists an ankylosing polyarthritis that is caused by hyperparathyroidism: (1) There exist ankylosing polyarthritides with hypercalcemia in which an infectious or gouty origin cannot be demonstrated; (2) parathyroidectomy improves these cases by a parallel decreasing of the calcium content of the blood, and (3) parathyroidectomy improves only the cases with hypercalcemia. Intervention is indicated in cases of ankylosing polyarthritis with hypercalcemia; one may either perform a parathyroidectomy or resect the terminal part of the inferior thyroid artery and the origin of the terminal branches. In their three cases in which operation was performed the authors obtained the following results: in two, improvement that has lasted for four months, and, in one, recidivation that occurred at the end of six weeks.

Nourrisson, Paris

19: 209-271 (July) 1931

*Anemia in Rickets. A. B. Marfan.—p. 209.
Cutaneous Diphtheria in Nurslings. H. Stux.—p. 228.
Suppurative Meningo-Ependymitis or Pyocephalus in the New-Born. R. Debré, G. Semelaigne and R. Broca.—p. 246.

Anemia in Rickets.—Marfan states that although it is known that anemia exists in rachitic conditions, opinions vary as to the reason for that condition. After a thorough discussion of the different theories now existing, he concludes that the anemia is not a result of the diseased bone marrow which characterizes rickets but a consequence of the same conditions that bring about rickets. The question of anemia in rickets is narrowed down to that of the nature of the pathogenesis of the disease itself and it is with that idea in mind that one must study it.

Presse Médicale, Paris

39: 1061-1076 (July 15) 1931

*Roentgen Therapy in Dry Gangrene. A. Zimmern, J. A. Chavany and R. Brunet.—p. 1061.

Dry Gangrene: Roentgen Irradiation of Suprarenal Region. — Gangrenous processes are frequently reported in obliterative arteritis. With stress on dry gangrene, Zimmern and his co-workers report eight case histories of this condition. The complications incident to dry gangrene may be senile, diabetic, syphilitic and diabetic-syphilitic arteritis, as well as arteritis praecox. Involvement of the periarterial sympathetic system is to be considered in many gangrenous conditions. Traumatism, cold, humidity, smoking and lowering of body tonus are some of the contributory causes. It is the belief of the authors that dry gangrene may be due to hypersuprarenalism. Unilateral suprarenalectomy and suprarenal roentgen therapy may relieve this possible hyperfunctioning of the suprarenals. However, the mortality (13 per cent) and the risk of a resulting hyposuprarenalism make suprarenalectomy dangerous. Roentgen therapy by reason of its moderate action on the endocrine glands may well supplement suprarenalectomy. The important diagnostic symptoms in dry gangrene are the coloration of the tissues and the temperature. The zone most affected still keeps its livid or dark appearance after irradiation but soon takes on a distinct firmness. The diffuse cyanosis around the lesion pales and soon assumes an almost normal appearance. Complete cure takes place in several weeks or two to three months according to the severity. Pain is decreased sometimes in one or two treatments, although some patients continue to suffer locally.

39: 1077-1092 (July 18) 1931

*Serologic Reactions in Syphilis: Antigenic Function of Lipoids. R. Demanche.—p. 1077.
Compound Fracture of Leg: Thirteen Cases. E. Bressot.—p. 1080.

Serologic Reactions in Syphilis: Antigenic Function of Lipoids.—All serologic reactions in syphilis may be viewed as colloid phenomena. According to Demanche they constitute examples of the flocculation of one colloid, the lipoid antigen, with another, the serum albumin. Recent researches tend to prove that the antigenic function is not due exclusively to albumins but to other organic substances, particularly the lipoids. It is known that the antigenic function is manifested in two ways: (1) immunizing power—the formation of antibodies in the blood of a living person inoculated with antigen; (2) the reaction in vitro—the ability of the antigen to combine in the test tube with the corresponding antibody and to react with it so as to fix the complement or bring about flocculation. It has been found that a syphilitic liver, rich in spirochetes, is antigenic whereas an alcoholic extract is not. However, the alcoholic extract combined with a foreign albumin will develop antigenic properties. Thus lipoids as well as proteins possess antigenic properties, not only reacting with antibodies but engendering these antibodies. The lipoid-albumin complex contains the specific lipoid together with the nonspecific protein. The activity of the lipoid antigen depends not only on the chemicophysical state but also on the proper colloid dispersion. In interpreting the reactions of colloid suspensions of lipoids, one must not lose sight of the rôle of the proteins. A secondary reaction due to the proteins may be so strong as to be manifested in the specific antigen antibody reaction and bring about a nonspecific fixation of complement and flocculation. These pseudoreactions due to the lack of stability of proteins and accompanying processes of cellular destruction may be met in conditions such as pregnancy, tuberculosis, malignant tumors, severe pyrexia and cachectic states. It is the duty of serologists to prevent these pseudoreactions. This can be done only through much empiric experimentation.

39: 1117-1132 (July 25) 1931

*Latent Syphilis of Testis. E. Bertin, P. Nayrac and A. Breton.—p. 1117.
Sulphur and Growth. L. Binet and A. Arnaudet.—p. 1120.

Latent Syphilis of Testis.—Bertin and his associates state that this condition often passes unrecognized. It is generally a question of old syphilitic patients. But they are perfectly well; their sexual functions are normal and they do not have testicular difficulties. There seems to be integrity of the secondary sex characters. After a discussion of many clinical and anatomopathologic conditions the authors conclude that the doctrine of latent syphilis is a distinctly individual entity. The social importance of the disease in the explanation of some barren marriages and frequent dystrophies of infants born of syphilitic parents is evident.

39: 1165-1180 (Aug. 5) 1931

*Intestinal Perforation in Typhoid. C. Lenormant and P. Wilmoth.—p. 1165.
*Epicondylitis Among Fencers and Tennis Players. Conzette.—p. 1167.

Intestinal Perforation in Typhoid.—Lenormant and Wilmoth stress the seriousness of this complication. Three per cent of all typhoid cases are of this type, but many masked perforations are found at necropsy. It is usually considered that 95 per cent of the cases are fatal, but even this mortality may be too low. Perforation is observed in all stages and forms of typhoid. Early intervention (sixth to tenth hour) is important.. Typhoid patients should be watched for more or less acute abdominal pain, a certain degree of abdominal contraction, and a sudden modification in the pulse or temperature. Chances of cure are greater in convalescent and ambulatory forms of typhoid in which the patient's resistance is greater. The authors advise suture in preference to fistulization and resection—it is easy and rapid and is executed under local anesthesia. To prevent possible tearing, the sutures are fixed to the wall of the abdomen. In multiple perforation, exteriorization is advised. The authors submit the results of ten personal case observations. They admit that the results (three cures) are not convincing but may prove of value when added to other already published results.

Epicondylitis Among Fencers and Tennis Players.—Conzette asserts that this condition consists of pain in the apophyseal regions, localized most often in the inferior part of the humerus, without appreciable bone lesions demonstrated by palpation or roentgenoscopy. It is a periosteal pain due to a contraction of the long muscles, especially the extensors, acting on the periosteum through the intermediary of their tendinous and aponeurotic expansions, which are anastomosed with the fibers of the external layer of the periosteum. The condition is a disease of the adult, more frequent in men than women, especially those taking part in sports, but also those workers obliged to extend their hands, as washerwomen, coachmen and dishwashers. Epicondylitis is more common at the age of from 30 to 50 when muscular capacity is greatest. The more muscular are susceptible. However, the author cannot explain the variable predisposition. Since epicondylitis includes manifestations due to tuberculosis, syphilis and Schlatter's disease the name apophyseal periostalgia is recommended for this condition.

39: 1181-1196 (Aug. 8) 1931

*Paternal Transmission of Tuberculosis. P. Nayrac and A. Breton.—p. 1181.
Prophylaxis in Industrial Emanations. H. Cristiani.—p. 1184.
Complete and Chronic Uterine Inversion. Ho-Dac-Di.—p. 1186.

Paternal Transmission of Tuberculosis. — Nayrac and Breton believe that the recognition of the ultravirus in tuberculosis has modified profoundly the conception of heredity with regard to the bacillus. Far from denying the existence of ingrained heredity, one now recognizes the important rôle of the mother in the transplacental infection in utero of the fetus by a filtrable virus. This recent belief has come as a consequence of a complete revision of certain classic ideas. The infestation of the fetus by the filtrable virus does not guarantee the inevitable ingrained heredity, without hope of all prevention; on the contrary, it seems to create an immunity, feeble, it is true, but able to explain the great resistance of young infants to first infection. The authors have been carrying on researches on the human and the animal testis for a number of years. They compare syphilis and tuberculosis, finding the lesions histologically specific but the mode of inheritance similar. The morphologic changes in the tuberculous testis represent to them an extreme state of toxic action. Spermatozoids in the majority of pulmonary tuberculosis patients are from acutely injured testes of abnormal structure. In the personal equation of the infant there exists a paternal heredity factor in regard to tuberculosis. Biology can prove its existence but cannot foretell the consequences—whether a question of creating a constitutional feebleness, a dystrophy later to be revealed or, on the contrary, the production of humoral defensive reactions. General pathology may prove both hypotheses to contain part of the truth but they are still hypotheses. Morphologic studies should be replaced by bacteriologic experimentation and especially by clinical statistics in order to push this problem forward. The infant of a patient with pulmonary tuberculosis is born of an abnormal spermatozoid. This is the solid fact to which is tied the question of paternal heredity of tuberculosis.

Archivo Italiano di Chirurgia, Bologna

29: 361-468 (June) 1931

Membranous Formations About the Colon. C. Luccioni.—p. 361.
*Familial Elephantiasis of Gums. A. Mirolli.—p. 401.
Experimental Researches on Resection of Lesser Curvature of the Stomach. C. Parzani.—p. 417.
Carcinomas of Lesser Curvature of Stomach, Developing on Previous Chronic Ulcers. G. Calissano.—p. 437.
Vaselinomas. T. Biancheri.—p. 449.
Puncture Wound of Epigastrium with Lesions of Liver, Diaphragm, Pericardium and Heart; Operation; Recovery. I. Ott.—p. 462.

Familial Elephantiasis of Gums.—Mirolli describes two cases of gingival elephantiasis in two persons belonging to the same family, in which twelve out of twenty-nine members presented more or less marked symptoms of the disorder. He does not consider it necessary (basing his opinion on the genealogical picture) to cite the mendelian theory to explain the hereditary nature of the disease in these two patients the study of which leads him to believe that among the manifest or latent symptoms of the physiopathology of the hypophysis one must include gingival elephantiasis. He uses the term "elephantiasis" both because it has the advantage of indicating frankly the anatomoclinical nature of the lesion, leaving open the etiopathogenic questions, and because of the dilatation of the lymphatic vessels of the papilla, which is an important histologic characteristic of true elephantiasic states. Histologic researches in one of the two cases revealed thickening of the epithelium. The author reviews all the cases of gingival elephantiasis known to him, and gives a bibliography of the disorder.

Clinica Medica Italiana, Milan

62: 527-624 (June) 1931

*Aplastic Anemia and Arsphenamine Intoxication. C. Semenza.—p. 527.
Neurosympathetic Tonus: Pharmacodynamic Substances and Gastric Functioning. G. Bagnaresi.—p. 542.
Achylic Anemias and Anemias of Pernicious Type. C. Papp.—p. 569.
Peculiar Effects of Thyroxine on Glycemia. W. Melocchi.—p. 586.
Determination of Organic Acids in Urine. G. Barbaro-Forleo.—p. 594.

Aplastic Anemia and Arsphenamine Intoxication.—Semenza reports two cases of arsphenamine intoxication with a picture of grave blood disease, characterized by erythropenia, leukopenia and thrombopenia, together with hemorrhagic manifestations. In the first case, the anemic syndrome developed following intense treatment with arsphenamine, with manifestations chiefly hemorrhagic and with symptoms of aplastic anemia. No therapeutic measures could check the progressive and fatal course of the disease. Repeated transfusions of blood gave only temporary relief. In the second case, the arsphenamine intoxication had an aggravating effect on the disease previously diagnosed as aplastic anemia. No therapeutic measures brought any benefit, including liver therapy. The transfusions of blood improved notably the general condition and the state of blood crasis, with manifest attenuation of the hemorrhagic syndrome. The benefit was of short duration, for after a few days the various symptoms appeared with such gravity as to require renewed transfusions. In this case splenectomy was tried, owing to the fact that other forms of treatment proved inefficacious, and in consideration of the modern views in regard to the inhibitive influence that the spleen exerts on the activity of the medullary tissue. No treatment availed to arrest the fatal course, which is the more grave and rapid the more profoundly affected the blood crasis is. The author emphasizes the need of systematic examinations of the blood during arsphenamine treatment in subjects with symptoms of functional deficiency of the hematopoietic organs.

Clinica Ostetrica, Rome

33: 401-464 (July) 1931

*Application of Dick Test to Obstetrics. E. Ponzi.—p. 401.
Hernia of Adnexa Uteri. F. Contarini.—p. 407.
Metrorrhagia Due to Falsely Diagnosed Cervical Polypus, Which Gave Rise to Useless Hysterectomy. F. Patti.—p. 413.
Medicolegal Opinion as to Culpable Homicide in Lesions Produced by Forceps. A. Bertino.—p. 417.
Intravenous Injections of Sodium Citrate in Gynecologic Hemorrhages. F. Pasquini.—p. 432.
Late Hemorrhages of Puerperium and Diagnostic Errors with Regard to Placental Retention. P. Gaifami.—p. 445.

Application of Dick Test to Obstetrics.—Ponzi concludes from the outcome of tests applied to 250 gravidas and repeated in a series of 100 women, also after labor, that in pregnancy the Dick test has a high percentage of positivity and that often pseudoreactions intervene.

Policlinico, Rome

38: 989-1024 (July 13) 1931. Practical Section

*Use of Leeches in Postoperative and Puerperal Phlebitis. G. Rossi.—p. 989.
Polyneuritis Due to Pregnancy. A. Brugi.—p. 995.

Use of Leeches.—Rossi reports eleven cases of phlebitis—eight cases of postoperative, one of puerperal and two of primary phlebitis—in which the application of leeches (according to the Termier method) gave constantly rapid and brilliant results: (1) arrest and retrogression of the edema; (2) rapid reduction of the pain, the sense of weight characteristic of the disease, and cutaneous sensitiveness; (3) rapid decline of the temperature and (4) absence of untoward incidents. The author favors the method.

38: 1025-1064 (July 20) 1931. Practical Section

*Treatment of Pleural Empyema in Children. U. Ferri.—p. 1025.
Uterus Pseudodidelphys with Divided Vagina and Right Hematocolpos. A. Passaggi.—p. 1030.

Treatment of Pleural Empyema in Children.—Ferri dwells particularly on surgical treatment (rib resection and pleurotomy) and his recent methods of medical treatment with intrapleural injections of sodium taurocholate and ethylhydrocupreine hydrochloride. He reports some of his personal observations and favors early treatment with ethylhydrocupreine or taurocholate in empyema due to pneumococcus, but in the types due to other micro-organisms the preferred treatment remains surgical, particularly rib resection, but avoiding, when possible, too early intervention. To improve the general condition, he recommends early and repeated evacuative puncture.

Riforma Medica, Naples

47: 1025-1064 (July 6) 1931

Indications for New Operation on Stomach if Gastric Disorders Persist. D. Giordano.—p. 1027.
*Multiple Abscesses of Liver Complicating Intrahepatic Calculosis. G. C. Parenti.—p. 1031.
Malignant Evolution of Nevus Verrucosus: Case. V. Silvestrini.—p. 1037.

Multiple Abscesses of Liver Complicating Intrahepatic Calculosis.—Parenti's patient, aged 59, had abdominal disturbances with a clinical picture of extrahepatic calculosis. The condition terminated in septic pyemia. At necropsy there were found many abscesses of the liver, intrahepatic diffuse calculosis and a large pararenal abscess. In this case certain dyscrasic disturbances of the bile and the migration of stones rendered the primary extrahepatic condition intrahepatic. There was an interdependence between calculosis and the formation of intrahepatic abscesses whose two principal factors were: the biliary stasis caused by calculosis and the action of the intestinal bacteria, which had become more virulent on account of the stagnation of the bile. The pararenal abscess formation was secondary to the suppurative process of the liver. The transmission of the infection from the lower aspect of the right lobe of the liver to the pararenal area was due to the proximity of both areas.

Rivista di Clinica Medica, Florence

32: 201-240 (March 15) 1931

*Glycemia in Exophthalmic Goiter D. Vettori.—p. 201
Case of Cancrocirrhosis, with Pylethrombosis as a Terminal Episode. E. Liesch.—p. 218.

Glycemia in Exophthalmic Goiter.—Vettori examined, under the best technical conditions, with the modified Bang micromethod, the blood in seven cases of exophthalmic goiter and five aborted cases with symptoms of exophthalmic goiter or with polyglandular syndromes. He found a frank hyperglycemia (fasting) in 33 per cent of the cases, a perceptible increase of blood sugar in 50 per cent and in the remaining 17 per cent blood sugar values ranging around normal. The degree of hyperglycemia did not appear proportional to the intensity of the exophthalmic goiter or to the concomitant insufficiency of the sexual glands, or in direct relation with the increase of basal metabolism. After giving a critical survey of the various theories proposed, all founded on the multiplicity of antagonisms and of harmonic correlations, the author is inclined to explain hyperglycemia in exophthalmic goiter as due to a retarded secretory activity of the pancreas, whether it is due to a true insufficiency of the injured organ or rather to the inability of that organ (liver) to restore the efficacy of the pancreatic secretion. It is possible also that hyperepinephrinemia, if it exists, tends to accentuate the hyperglycemic disequilibrium.

Rivista di Clinica Pediatrica, Florence

29: 473-552 (June) 1931

Modification of Moro Skin Test. M. Scarzella p 473
*Number of Cases of Cephalic Tetanus in Children. B Trambusti—p 487.
Frequency of Paralysis of Uvula in Measles D Corda—p. 506

Cephalic Tetanus in Children.—Trambusti reports six cases of tetanus with circumscribed cephalic manifestations and discusses them in detail, from the diagnostic and pathogenic point of view, in relation to the chemical picture of the condition termed "Rose's cephalic tetanus," which is characterized by three symptoms: trismus and spasms of deglutition, with paralysis of the seventh nerve on the side of the lesion. He thinks he can demonstrate that this morbid condition is more frequent in children than is generally supposed, and therefore calls the attention of pediatricians to the condition. He emphasizes the relatively benign nature of the prognosis established in the cases observed and the value of serotherapy applied exclusively intramuscularly, if the treatment is undertaken early and the serum is administered in generous doses.

Prensa Médica Argentina, Buenos Aires

18: 73-116 (June 20) 1931

Splenectomy in Thrombocytopenic Purpura Hemorrhagica. A Ceballos and H. Taubenschlag.—p 73.
*Abdominal Palpation with Sound in Stomach for Diagnosis of Mobile Intra-Abdominal Tumors. A. J. Heidenreich and G. L. Heidenreich.—p. 79.
Normal and Pathologic Tonsils in Childhood. J. Damianovich—p 86.
Several Aspects of Syphilis as Observed in Dermatosyphilologic Clinics. J. L. Carrera.—p. 96.
Hernia of Diverticulum of Bladder: Case. E. F. Malbec and F. Basch.—p. 100.

Abdominal Palpation in Mobile Intra-Abdominal Tumors.—The Heidenreichs state that abdominal palpation made while the patient has a tube in his stomach is of value for the clinical diagnosis of mobile tumors in the abdomen. Both the tube and the gastric tumor move synchronously with respiration. In patients with gastric disturbances of long duration the aggravation of the symptoms and the appearance of a syndrome of intra-abdominal tumor and derangements of the common bile duct such as jaundice, choluria and acholia are indicative of the presence of an ulcer of slow evolution situated on the posterior surface of the stomach. Neoplastic degeneration of the ulcer results in a tumor formation at the site of the ulcer, the tumor developing freely into the epigastrium. Tumor cells migrate also to the head of the pancreas. The extrinsic compression of the bile ducts by the swollen head of the pancreas produces the biliary symptoms. The clinical diagnosis of this double tumor, made by the authors' method is confirmed by roentgen examination. During the operation made under local anesthesia the movement of the gastric tumor under respiration is proved. The author reaches the following conclusions: Gastric tumors even if adherent to the pancreas have an axial respiratory movement. Gas distention of the stomach causes the gastric tumor to be displaced even though it is adherent to the pancreas. A gastric tumor is synchronously displaced under respiration in the same direction as that of a gastric tube placed in the stomach.

Semana Médica, Buenos Aires

38: 81-164 (July 9) 1931. Partial Index

*Bernard-Horner Syndrome During Evolution of Epithelioma of Upper Lobe of Lung. C. da Rin.—p. 81.
Suppurative Strumitis and Thyroiditis: Diagnosis and Treatment. J. M. Jorge.—p. 92.
Sequelae of Curettage of Uterus Done Immediately After Delivery. A. Chueco.—p. 100.
Meaning and Importance of Dynamic Medium Blood Pressure in Hyperpiesis, Eupiesis, Cardiac Insufficiency and Hypopiesis. C. P. Waldorp, C A Bordo and S. Gemjovich.—p. 104.
Anatomy of Third Ventricle. M. Balado.—p. 121.
Symphysiotomy in Primiparas: Indications. D. A. Rojas.—p. 131.
Chronic Myelogenic Leukemia Complicated by Pleurisy and Ascites. J. Orgaz.—p. 136.
Relation of Anterior Lobe of Hypophysis to Female Reproductive Organs. J A Viriot.—p. 144.
Roentgen Photometer: New Apparatus for Obtaining Roentgenograms of Uniform Distinctness and Density. C. Heuser.—p. 152.

Bernard-Horner Syndrome During Evolution of Epithelioma of Lung.—Da Rin reports the case of a man, aged 40, who during the evolution of an epithelioma of the upper lobe of the left lung presented the Bernard-Horner syndrome. In the pathogenesis of the syndrome in cancer of the lung, the pressure produced on the cervical sympathetic ganglion by the tumor or its metastases is the most important factor. In the author's case the anatomic observations proved that the primary tumor had developed in the left bronchus and had extended to the lung and to the pleura. No cases of Bernard-Horner syndrome complicating cancer of the lung have been previously reported. It is probable that they have existed but that attention was not given to them on account of the fatal prognosis for the patient's life which the condition represents, especially when the patient is seen during the final stages of the disease.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

88: 335-422 (July) 1931. Partial Index

Placenta as Incretory Organ and Its Biologic and Pathologic Influences on Female Organism. L. Seitz.—p. 335.
What is Meant by Stroganoff's Procedure in Eclampsia? P. Rissmann.—p 360.
Does Death of Child During Confinement Reduce a Woman's Desire for More Children? Emilie Dauber.—p. 361.
Ectopic (Intramural) Pregnancy of Nearly Eight Months Duration with Living Fetus. E. B. Liebinsohn.—p. 378.
Heavy Metals in Treatment of Malignant Tumors. B. Liegner.—p. 386.

Münchener medizinische Wochenschrift, Munich

78: 1207-1246 (July 17) 1931

*Results of Diphtheria Prophylaxis in Munich. M. Pfaundler.—p. 1207.
Observations on Variations in Character of Diphtheria: Problem of Mixed Infection. R. Hopmann and A. Panhuysen.—p. 1208.
Transmission of Fowl Tuberculosis to Human Beings. M. Klimmer.—p. 1212.
Pulmonary Tuberculosis in Adults Caused by Bovine Infection (Inhalation). Schultes.—p. 1215.
Use of Atropine to Detoxify and Increase Efficacy of Circulatory Drugs. C. J. Keller and H. K. Meyer.—p. 1216.
*Bite Injury by Rabid Badger. F. A. Lentze.—p. 1218.
Roentgen Therapy in Children's Diseases: Indications and Results W. Birk.—p. 1219. C'cn.
Examination of Rectum for Fissures. F. Cramer.—p. 1223.
Calcium Therapy of Phlyctenular Keratoconjunctivitis. M. Cremer.—p. 1223.
Treatment of Leukorrhea. Bercke.—p. 1223.

Diphtheria Prophylaxis in Munich.—Pfaundler reports investigations on the diphtheria morbidity and lethality rates among children who had been vaccinated against diphtheria and he compares these with those of children who had not been so vaccinated. It was found that the morbidity rate was considerably reduced by the prophylactic vaccination. Whether the mortality rate was also reduced cannot be stated with certainty on the basis of these statistics for only 18 of the 2,485 children who had been vaccinated contracted diphtheria, and none of these died. Among the children who had not been vaccinated and contracted diphtheria, one in twenty-four died. Reports from other large cities in which larger numbers of cases were investigated show that prophylactic vaccination against diphtheria reduces also the mortality rate.

Bite by Rabid Badger.—Lentze reports the case of a man who while working in the fields was suddenly attacked by a badger. Because the man was wearing thick clothes the bite resulted only in superficial abrasions. It was suspected that the badger might have rabies and a microscopic examination of its brain actually revealed the presence of Negri bodies. The man was given antirabic treatment and the bite did not have any serious results. In conclusion the author points out that rabies is comparatively rare in badgers but should always be considered whenever animals which are ordinarily shy, such as badgers, foxes or polecats, attack human beings suddenly and without provocation.

Zentralblatt für Chirurgie, Leipzig

58: 1809-1872 (July 18) 1931

Leukoplakia of Tongue and Development of Cancer. Jenckel.—p. 1810.
*Danger in Treatment of Bone Injuries Following Electrical Traumas. P. Frühmann.—p. 1815. .
*Prognosis and Therapy of Pneumococcus Sepsis. E. Glass.—p. 1817.
*Enlargement of Mammary Gland Following Prostatectomy. E. Kondoleon. —p. 1821.
Is Surgical Treatment Justified for Purely Nervous Disorders? A. Cornelius.—p. 1822.
*Aspects of Umbilical Colics in Children. J. Philipowicz.—p. 1823.
Conservative Treatment of Renal and of Ureteral Calculi. W. K. Fränkel.—p. 1825.

Treatment of Bone Injuries Following Electrical Traumas.—Frühmann reports the case of a woman, aged 34, who while telephoning sustained a shock from an electric lamp. As a result of this she had intense pains in her right shoulder and could not move the arm. The patient had not fallen or hurt herself in any other way, but roentgenoscopy revealed a dislocation of the shoulder joint and an avulsion of the greater tubercle, but no other changes. When attempts were made to reduce the dislocation, the neck of the humerus fractured. Surgical treatment was resorted to and the fracture healed, so that the patient is now able to use her arm again. In discussing as to how, in spite of careful manipulation, the fracture came about, the author points out that although much is known in regard to the injurious effects of the electric current on the soft parts, little is as yet known about the bone injuries. Jellinek discovered extremely fine fissures in bones that had been exposed to strong electric current. He designated these fissures as scissions. In the roentgenogram they are frequently not detectable, at least immediately following the accident, but after several days they may become visible. Later they usually disappear again. These fissures or scissions have been demonstrated in the bones of patients who have died as the result of a contact with a powerful electric current, and it has also been possible to produce them in animal experiments. Electropathologic specimens show that they develop not only in organic substances such as bones and wood but also in inorganic substances such as glass, porcelain and metal. It is probable that they are purely mechanical effects of the current. In the conclusion the author stresses that if in case of an electric trauma there are signs of bone involvement, the bone should be treated with great care and should be immobilized.

Prognosis and Therapy of Pneumococcus Sepsis.—Glass describes the clinical history of a girl, aged 9, who for six months received treatment for pneumococcus sepsis. In spite of the fact that the process persisted for six months, that new abscesses always developed in different locations, that both pleura and the abdominal cavity were involved and that an abscess developed on the buttocks, cure was nevertheless effected. From this the author concludes that the prognosis in such cases is not always unfavorable. With regard to the therapy he states that in pneumococcus suppurations an expectant attitude until localization has taken place is better than early operative treatment. One should also avoid attacking immediately every new focus and rather await the formation of other foci and then choose the method and the time of intervention so that these usually extremely weakened patients can withstand the intervenion. Only fully encapsulated foci should be operated on and by means of the least complicated procedure. To the adherence to this principle the author ascribes the favorable results in the reported case.

Enlargement of Mammary Gland Following Prostatectomy.—To a report, made in 1920, of two cases of gynecomastia following prostatectomy, Kondoleon adds a third case. In a man, aged 62, there developed five months following suprapubic resection of an adenoma of the prostate a bilateral swelling of the mammary glands. The enlargement persisted several months and then gradually disappeared. The author found reports of two other cases in the literature, which brings the total number to five. He believes that one is hardly justified in assuming the existence of a prostatic internal secretion that inhibits the growth of the mammary glands. The experimentally as well as clinically demonstrated relation between the mammary and generative glands makes that hypothesis more probable which assumes that the obliteration of the spermatic cords, which usually follows prostatectomy, impairs the functioning of the testes and by this influences the mammary gland. However, the author thinks that the theory of a prostatic internal secretion cannot be disproved.

Aspects of Umbilical Colics in Children.—According to Philipowicz, the relapsing umbilical colics of children are characterized by severe attacks of pain in the region of the umbilicus. They often appear suddenly without previous disease symptoms. The children become pale and weak and begin to vomit. The duration of the attacks varies. In some cases eclampsia develops. If the attack is of minor severity the children recover quickly until, after days or weeks, they have a new attack. In others, the general condition becomes markedly impaired, their faces become grayish and old looking, and constipation develops. Moro, who first described this condition, assumed a neuropathic predisposition which leads to neurovascular crises with resulting acute anemia. Friedjung thought of hysteria during childhood, and both he and Moro tried psychotherapy and were successful in some cases. Küttner and von Winiwarter, however, considered the umbilical colics as caused by disorders of the vermiform appendix. Appendectomy relieved the condition in many cases and frequently a suppurative appendictis was discovered. The author likewise obtained favorable results with appendectomy in eighteen cases of relapsing umbilical colic. In one of these cases, however, he made an observation that he thinks will throw new light on the etiology of relapsing umbilical colic. Laparotomy revealed that the appendix was long and in the last third slightly angulated. There were no changes in the mesenteriolum. Following appendectomy, inspection of the abdominal cavity revealed in the mesocolon a chain of enlarged, doubtless tuberculous, lymph nodes about 1 cm. in diameter. Roentgen therapy was instituted and since then the child has had no further attacks of colic. The author is convinced that not the appendix but the lymph nodes had caused the attacks but the operation was of value because it revealed the tuberculosis of the lymph nodes early enough to make their treatment possible.

Vrachebnaya Gazeta, Leningrad

July 15, 1931, number 13, pp. 967-1042

War Surgery. V. A. Oppel.—p. 971.
*Endocarditis: Etiology, Immunity. K. T. Gluchov.—p. 982.
Diet in Typhoid. A. Y. Yarotskiy.—p. 989.
Ambulatory Typhoid. B. A. Jitnyikov.—p. 991.
*Widal Reaction in Typhoid Contacts. A. T. Balmagiya.—p. 997.
Roentgenology and Aphonic Diseases of Heart. R. S. Levin and K. D. Lukashik.—p. 1001.

Endocarditis: Etiology, Immunity.—Gluchov, who used forty-four rabbits in his experiments, summarizes his results as follows: 1. Spraying the lymphoid tissue of the throat with small toxic doses of streptococci results in septic endocarditis. 2. Immunization with vaccine or killed cultures of streptococci protects the animal against subsequent toxic doses known to produce endocarditis. 3. Immunization with streptococcus vaccine does not protect against subsequent infection with staphylococci, with resultant staphylococcus septicemia and endocarditis. 4. Endocarditis in the experiments presupposes a streptococcus or staphylococcus septicemia. Absence of endocarditis presupposes an immunity as a result of vaccine or inoculations of living organisms. 5. Normally in rabbits endocarditis seems to be associated with pneumonia. 6. A small dose, 1 cc., of streptococcus vaccine given by way of the lymph tissue protects a rabbit against a lethal dose of living culture.

Widal Reaction in Typhoid Contacts.—Balmagiya reports the results of studies made during an epidemic of typhoid in Odessa in 1929 and 1930. Many persons, in contact with typhoid patients, although never immunized against typhoid and showing no clinical symptoms, had positive Widal reactions. The author believes that this is a latent form of infection. Previous contact with typhoid patients may explain the paradoxical Widal reactions in patients with symptoms of other diseases.

July 31, 1931, number 14, pp. 1049-1122

Variability and Bacteriologic Diagnosis. S. S. Kagarnovskaya.—p 1051.
Humoral Reactions in Neurosyphilis. G. D. Aronowitsch.—p. 1057.
Nocturnal Enuresis. S. D. Artamonov —p. 1067.
Massage of Prostate. M. L. Kieps.—p. 1071.
Organic Nature of Atmospheric Concussion. M. A. Sheftyel —p 1077.
*Pityriasis Rubra of Hebra. A. N. Beerger and M. A. Versylova.—p. 1081.

Pityriasis Rubra of Hebra.—Beerger and Versylova made a thorough study of one case, including a careful examination at necropsy. The history shows a gradual spreading of the dermatitis exfoliativa until the whole surface of the body was covered. Relapses were frequent. There was never any vesiculation or exudation. The authors believe that the sebaceous glands may be responsible. There was no tuberculous involvement. Contrary to some workers, who place the disease in the age group 40-50, this patient was first affected in childhood (aged 6), coming to the clinic for examination at the age of 56. The patient was under the authors' care for five and a half years. The disease is reported by some workers as secondary to chronic dermatitis. In this case the first lesions were localized on the elbows and knees and were diagnosed as psoriasis. When the patient came under the observation of the authors, the abdomen was covered with spreading, psoriasis-like papules. The skin was red. A brother of the patient has psoriasis.

Vrachebnoe Delo, Kharkov

14: 305-416 (April 30) 1931

Early Diagnosis of Cancer of Stomach and Intestine. L. B. Buchshtab.—p. 315.
Pulmonary Cancer. A. S. Furmann and S. B. Massino.—p. 319.
Malignant Diseases in Five Years of Clinical Study. F. S. Juriew.—p. 324.
*Clinical Aspect of Hypernephroma. I. L. Saitschenko.—p. 328.
*Gynecomastia. A. B. Cheiitz.—p. 333.
Roentgen Therapy in Epithelial Cancer. M. N. Rabinowitsch.—p. 336.
Leukocytic Picture in Inflammatory Diseases. T. C. Toprover.—p. 339.
*Specificity of Intradermal Reaction to Echinococcus. E. A. Chrustschewa.—p. 343.
Vaccination in Coli-Typhoid Group. M. I. Melnik.—p. 349.
*Influence of Hormone of Anterior Lobe of Hypophysis in Animal Experiments. S. Werchratsky.—p. 352.

Clinical Aspect of Hypernephroma.—Saitschenko discusses the theories and clinical aspect of hypernephroma, citing three cases from his own experience. It is difficult to determine the beginning of the disorder when symptoms are absent; however, the triad of hematuria, pain and tumor appear in the second period when treatment is difficult. The second period may include varicocele, fever, edema, cachexia, obstruction of the intestines, pigmentation of the skin (as in Addison's disease) and metastases. The condition is chronic, lasting many years (fifty-four years in one instance reported by Askanadzi). Disagreeing with other workers, who believe that it may be derived from the parenchyma of the kidney or that it may be an endothelioma, perithelioma or derived from the wolffian bodies, the author agrees with Grawitz that the tumor originates in the suprarenal. Nephrectomy seems the best treatment.

Gynecomastia.—Cheifitz finds 164 instances of gynecomastia in the literature, 5 from his own experience. Histologically, the author believes this a fibro-adenomatous condition of the male mammary glands. The condition may be another instance of sexual irregularity governed by adenoma of the hypophysis. The author advises operation.

Specificity of Intradermal Reaction to Echinococcus.—Chrustschewa believes this test may prove of great value in echinococcus diagnosis. Ninety patients with various diseases were tested and ten were found positive, with the test in each case specific. The reaction was considered positive when the skin at the site of injection in from three to five minutes appeared as a white papule from 1.5 to 4 cm. in diameter, the skin surrounding the papule at first mottled and later solid red. At the same time a control of physiologic solution of sodium chloride is injected on the other arm. An eosinophilia before and after the intradermal test must be proved before the condition can be diagnosed as an echinococcus infection.

Influence of Hormone of Hypophysis in Animal Experiments.—Werchratsky injected into guinea-pigs daily 1 cc. of hormone extract obtained from the urine of women in the second period of pregnancy. The animals died after the twelfth, nineteenth and twenty-six injection. Microscopic examination of the genital organs showed, in the ovary, corpus luteum formation; in the uterus, an hypertrophy of the endometrium and muscularis; and in the collum uteri and vagina, hypertrophy of the epithelium. The mammary glands also showed hypertrophy and hyperplastic processes with colostrum formation. In pregnant animals, injection of the hormone resulted in abortion. Diuresis was noted. The author does not believe that the hormone is of pituitary origin but that it is a product of pregnancy itself and is present in the chorion and placenta.

14: 417-536 (May 31) 1931

Aphonic Heart Beats. W. A. Bekenew.—p. 421.
Localization in Double Pulmonary Tuberculosis. S. Wainer.—p. 430.
*Erysipelas Carcinomatosum Cutis. E. G. Tschernjachowsky and W. Bondartschuk.—p. 433.
*Calcium Content of Blood of Pregnant Tuberculous Women. J. O. Krijewsky.—p. 438.
Influenzal Pneumonia in Children. J. N. Bistrenin.—p. 441.
Operation in Detachment of Retina. M. I. Avjerbach.—p. 446.
Gonin's Operation in Detachment of Retina. W. P. Filatow.—p. 447.
Dislocation of Crystalline Lens into Outer Chamber. M. Gamelin-Natansohn.—p. 453.
*Trachoma: Vaccine Therapy with Bacillus Granulosis. H. Stepanowa and N. Azarowa.—p. 456.
Diagnosis and Therapy of Nystagmus Among Miners. M. M. Kolik.—p. 458.
Recurrent Paralysis of Oculomotor Apparatus. I. J. Hamarnik.—p. 462.
Heliotherapy and Gynecology. W. G. Dick.—p. 499.

Erysipelas Carcinomatosum Cutis (Küttner).—Tschernjachowsky and Bondartschuk find the condition in 2.5 per cent of all cases of mammary cancer (six instances noted from their own experience). The disease consists of two processes: primarily a blastomatosis, secondarily infection. The pathologic changes lead the authors to designate this disease as "lymphangitis carcinomatosa."

Calcium Content of Blood of Pregnant Tuberculous Women.—Krijewsky and his co-workers compare the calcium content of the blood of pregnant tuberculous and nontuberculous women. They find that the calcium content in tuberculous women is greater in the second period of pregnancy. The content in tuberculous women is greater than in nontuberculous women. The authors conclude that the tuberculous process influences the calcium content of the blood of pregnant women.

Trachoma: Vaccine Therapy with Bacillus Granulosis.—Stepanowa and Azarowa developed a polyvalent vaccine of Bacillus granulosis. Ninety-two patients, sixteen with conjunctivitis and the rest with trachoma, were treated. The vaccine was administered as drops, by rubbing the follicles, and by parenteral and subconjunctival injection. Control tests with vaccines of the pneumococcus, Koch-Weeks bacillus and Morax-Axenfeld diplobacillus were without result. Vaccine therapy of trachoma proved harmless and did not call forth secondary reactions in any of the patients treated. The influence on the trachoma process was favorable objectively and subjectively. The results so far pointed to specificity of Bacillus granulosis antigen in trachoma infections.

Finska Läkaresällskapets Handlingar, Helsingfors

73: 421-511 (June) 1931

Muscle Anomaly Rarely Seen in Man and Corresponding Muscle in Apes and Subapes. G. Hjelmman.—p. 421.

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ENDOCRINE ACTIVITY OF THE OVARY[*]

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The only sound basis for therapeutic treatment of menstrual disorders with hormones is a broad foundation of experimental evidence concerning the endocrine activity of the ovaries. I will summarize briefly in this paper the recent work on follicular and corpus luteum hormones and sketch in outline a conception of the factors responsible for the periodic changes in the genital organs during the menstrual cycle.

ANIMAL REACTIONS TO FOLLICULAR HORMONE

The hormone from the ovarian follicles ("theelin," "folliculin," "oestrin") is undoubtedly the principal ovarian hormone. The outstanding effect of this active substance is the production of rapid growth in the accessory genital organs. In the rat and the mouse, theelin is responsible for such rapid proliferation of epithelial cells as to replace completely the many layered vaginal wall in forty-eight hours. It exerts a similar growth stimulus on the uterus and mammary glands. It is probably responsible for maintenance of ciliation in the tubes and for the initiation of secretion in the uterus. In addition, it is responsible for the development of secondary sex characters. The illustrations in previously published articles[1] emphasize the growth stimulus exerted by follicular hormone (theelin) on genital tissues of the rat and the monkey.

One of the most interesting developments in work on follicular hormone has been Markee's[2] contribution of the study of vascular reactions in the endometrium in which a small piece is transplanted to the anterior chamber of the eye. His experiments consisted of autotransplantation of small sections of endometrium in the anterior chamber in positions where vascularization occurs. In the normal female rabbit in the period of sexual rest there is a normal rhythm of alternate vasodilatation and contraction. The transplanted endometrium remains pink for a short period and then blanches. If such an animal is ovariectomized vasoconstriction causes continued blanching. If theelin is injected to bring the animal into an experimental estrous period, the transplanted endometrium is flushed by continued vasodilatation.

This evidence is paralleled by the experiments on reddening and swelling of the sexual skin of monkeys.[3] These secondary sex characters, which develop at the time of puberty in young females, become extreme during the intermenstruum at the time of ovulation and retrogress somewhat at the approach of menstruation. This reddening and swelling can also be induced in ovariectomized animals by injections of theelin.

SOURCES OF THEELIN IN HUMAN GENITAL TISSUES

A considerable series of quantitative tests have been made of the follicular hormone content of human genital tissues.[4] These tests have been done in collaboration with Dr. J. P. Pratt of Henry Ford Hospital and Dr. Q. U. Newell of Washington University School of Medicine. The ovariectomized rat was the test animal. Fluid aspirated from follicles of human ovaries at operation was injected, and solid ovarian tissues were implanted in subcutaneous pockets in these animals. The full estrous growth of the vaginal wall was used as an indicator of positive reactions. By means of this short and clear cut "rat test" as a criterion of activity, a fairly thorough survey of sources of this active substance has been made by several investigators.[5] The splendid accomplishment of crystallization of this hormone by Doisy and his collaborators[6] and later by Butenandt[7] has followed.

Positive tests were obtained from fresh follicular fluid removed from the ovaries at operation, 0.37 cc. being the least amount effective.[8] The tissue walls of large follicles returned positive results when single pieces weighing as little as 0.18 and 0.22 Gm. were implanted. It is believed that further tests carried to higher dilutions will show greater concentrations of theelin in this tissue. That cortical stroma of the normal ovary shares little in the secretion of theelin was demonstrated by negative tests from implants of large pieces of this tissue from ovaries that contained in other regions either active follicles of corpora lutea.

Especial interest centered on the amount of theelin in the recent corpora lutea corresponding to ova recovered from the tubes.[8] The smallest amounts to return positive reactions were 0.07 Gm., an unusually high yield for living tissues. The two corpora corresponding to twin ova recovered from the tubes[9] each contained more than 14 rat units of follicular hormone per gram. Since the recent corpus averages about 1.5 Gm., this would mean the presence of at least 42 rat units of the follicular hormone in these two corpora soon after ovulation.

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[*] From the Department of Anatomy, University of Missouri School of Medicine.

[*] Read before the Section on Pharmacology and Therapeutics at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Allen, Edgar; and others: The Hormone of the Ovarian Follicle; Its Localization and Action in Test Animals, and Additional Points Bearing upon the Internal Secretion of the Ovary, Am. J. Anat. **34**: 133-181 (Sept.) 1924. Allen, Edgar; and Doisy, E. A.: The Induction of a Sexually Mature Condition in Immature Females by Injection of the Ovarian Follicular Hormone, Am. J. Physiol. **69**: 577-588 (Aug.) 1924. Doisy, E. A.; Ralls, J. O.; Allen, Edgar; and Johnston, C. G.: The Extraction and Some Properties of an Ovarian Hormone, J. Biol. Chem. **61**: 711-727 (Oct.) 1924. Allen, Edgar: The Menstrual Cycle of the Monkey, Macacus Rhesus: Observations on Normal Animals, the Effects of Removal of the Ovaries and the Effects of Injections of Ovarian and Placental Extracts into the Spayed Animals, Contributions to Embryology number 98, Carnegie Institution of Washington, Pub. 380, **19**: 1-44 (Aug.) 1927.

[2] Markee, J. E.: Modification of the Vascular Rhythm in the Rabbit Uterus by Follicular Hormone, Anat. Rec. **48**: 28 (Feb.) 1931.

[3] Allen (footnote 1).

[4] Allen, Edgar: The Ovarian Follicular Hormone: A Study of Variations in Pig, Cow and Human Ovaries, Proc. Soc. Exper. Biol. & Med. **23**: 383-387 (March) 1926. Allen, Edgar; Pratt, J. P.; Newell, Q. U., and Bland, L. J.: Hormone Content of Human Ovarian Tissues, Am. J. Physiol. **92**: 127-143 (Feb.) 1930.

[5] Allen, Edgar; and Doisy, E. A.: Ovarian and Placental Hormones, Physiol. Rev. **7**: 600-650 (Oct.) 1927. Parkes, A. S.: The Internal Secretions of the Ovary, London, Longmans, Green & Co., 1929.

[6] Veler, C. D.; Thayer, Sidney; and Doisy, E. A.: Preparation of Crystalline Follicular Ovarian Hormone: Theelin, J. Biol. Chem. **87**: 357-371 (June) 1930.

[7] Butenandt, A.: Untersuchungen über das weibliche Sexualhormon: Darstellung und Eigenschaften des kristallisierten "Progynons," Deutsche med. Wchnschr. **55**: 2171-2173 (Dec. 27) 1929.

[8] Allen, Pratt, Newell and Bland (footnote 4).

Several corpora lutea removed at other times in the menstrual cycle were analyzed. Although this series of tests should be extended, it indicated that the amount of theelin in the human corpus decreases before the beginning of the next menstrual period.

During the first few months of pregnancy, theelin is present in high concentration in the human corpus. Two full term corpora removed at cesarean section contained very little if any of this active substance. Therefore the human corpus luteum of pregnancy ceases to secrete theelin during the later stages of pregnancy.

In addition to the follicle and corpus luteum, the chorionic vesicle and later the placenta in man contains large amounts of this active substance. The amounts are so great that it seems probable that the placenta itself may take over the secretion of theelin which is initiated by the follicle and continued (in woman) by the corpus luteum.

During pregnancy and the latter half of the menstrual cycle, theelin may be recovered from the blood (Frank and Gustavson). It occurs in such large amounts in urine during pregnancy that this is an abundant source of supply.

SPECIFIC CORPUS LUTEUM HORMONES

In this survey of sources of theelin, consistently negative results were obtained from corpora lutea of the principal food supply animals, the cow, the pig and the sheep. A tiny piece of living tissue from a recent human corpus weighing only 0.07 Gm., however, returned a positive rat test while three sheep corpora per test animal failed to induce the positive reaction. This is indeed a striking species difference which must be recognized whenever the endocrine function of the corpus luteum is considered.

The rapid accumulation of experimental evidence emphasizing the primary importance of follicular hormone has been followed by the direct experimental evidence that the corpus luteum may serve at least four, perhaps five, endocrine functions.

First, Hisaw[10] has induced resorption of the symphysis pubis of the pocket-gopher and relaxation of the pelvic ligaments of the guinea-pig, such as normally occurs in these animals at parturition, by the "one-two action" of follicular (theelin) and corpus luteum ("relaxin") hormones. These reactions are apparently endocrine mechanisms peculiar to certain animals and cannot be elicited in others. This specific corpus luteum hormone has not yet been demonstrated in the blood of women during pregnancy. Hartman, however, finds relaxation of the pelvic ligaments of the monkey on the approach of parturition.

Then, secondly, Corner and Willard Allen[11] and Hisaw,[12] *independently*, have succeeded in the experimental production of (*a*) progestational conditions in the endometrium of rabbits and premenstrual endometrium in monkeys, (*b*) deciduomas at sites of foreign body stimulation of the uterus and (*c*) (Corner and Allen) successful continuance of gestation in rabbits after double ovariectomy. Since in all cases the action of theelin must precede that of this corpus luteum hormone, "progestin," the latter is obviously complementary to theelin.

Thirdly, Hisaw[13] has induced the mucous transformation of the superficial layers of the vaginal epithelium of rodents, which is characteristic during pregnancy.

Fourthly, several investigators (Papanicolaou,[14] Kennedy,[15] Kelly[16] and others) have succeeded in delaying or preventing the occurrence of ripening of the follicles and the onset of estrus by injections of corpus luteum extracts. An inhibitory effect on the follicles has therefore been attributed to the corpus luteum. Similar results have been obtained, however, with extracts of testis and also extracts of other ovarian tissues; therefore, it still seems doubtful whether this last effect can be considered a specific corpus luteum reaction.

Fifthly, Knaus[17] and others have inhibited the contraction stimulus of solution of pituitary on the uterus by corpus luteum extracts, but a similar effect has also been described for follicular extracts. Therefore, the latter reaction remains to be proved a specific corpus luteum reaction.

The extent to which the human corpus luteum shares the aforementioned functions is still somewhat in doubt. Little direct experimental evidence has been produced because of the difficulty of obtaining enough human material to extract. The pelvic relaxation effect has not been demonstrated in blood from pregnant women. Since transformation of the vaginal wall in primates is not as extensive as in pregnant rodents, it is doubtful whether the corpus luteum has this third endocrine function in woman. There seems little doubt that the human corpus luteum secretes progestin during early pregnancy, but it is well known that such a secretion is unnecessary after the third month. There are several cases in the literature of the removal of corpora lutea even earlier in pregnancy without the interruption of gestation. Other animals seem to require it throughout pregnancy. Therefore, the work to date indicates that some of the endocrine functions attributed to specific corpus luteum hormones do not apply to all animals. The tests for activity of corpus luteum extracts are not so short and easy when compared with the rat test for theelin. For this reason, slower progress in the exploration of sources and the production of biologically standardized purified extracts of corpora lutea must be expected. Since several species differ in these various reactions to corpus luteum extracts, generalizations should not be attempted until tests have been made in different mammals.

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[9] Allen, Edgar; Pratt, J. P.; Newell, Q. U., and Bland, L. J.: Human Tubal Ova: Related Early Corpora Lutea and Uterine Tubes, Contributions to Embryology number 127, Carnegie Institution Pub. 414, November, 1930, pp. 45-76.

[10] Hisaw, F. L.: The Influence of the Ovary on the Resorption of the Pubic Bones of the Pocket Gopher, Geomys Bursarius (Shaw), J. Exper. Zool. **42:** 411-441 (Oct.) 1925; Experimental Relaxation of the Pubic Ligament of the Guinea-Pig, Proc. Soc. Exper. Biol. & Med. **23:** 661-663 (May) 1926.

[11] Corner, G. W.: Physiology of the Corpus Luteum: I. The Effect of Very Early Ablation of the Corpus Luteum on Embryos and Uterus, Am. J. Physiol. **86:** 74-81 (Aug.) 1928; II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, ibid. **88:** 326-339 (March) 1929. Allen, W. M., and Corner, G. W.: III. Normal Growth and Implantation of Embryos After Very Early Ablation of the Ovaries, Under the Influence of Extracts of the Corpus Luteum, ibid. **88:** 340-346 (March) 1929.

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[13] Hisaw, F. L.; Fevold, H. L., and Leonard, S. L.: The Gonad Stimulating and the Luteinizing Hormones of the Anterior Lobe of the Hypothesis, Am. J. Physiol. **97:** 291-301 (May) 1931.

[14] Papanicolaou, G. N.: A Specific Inhibitory Hormone of the Corpus Luteum, J. A. M. A. **86:** 1422 (May 8) 1926.

[15] Kennedy: Corpus Luteum Extracts and Ovulation in the Rabbit, Quart. J. Exper. Physiol. **15**, 1925.

[16] Kelly, G. L.: The Effect of Injections of Female Sex Hormone (Estrin) on Conception and Pregnancy in the Guinea-Pig, Surg. Gynec. Obst. **52:** 713-722 (March) 1931.

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ESSENTIAL MECHANISM OF MENSTRUAL CYCLE

In outlining a conception of the probable mechanism of the menstrual cycle from recent experimental evidence, it might be said that toward the end of menstruation rapid growth of the follicles under stimulation from the anterior lobe of the hypophysis (Smith and Engle, Zondek and Aschheim) induces secretion of theelin to produce the growth phase in the accessory genital organs.[3] This includes accelerated growth of the vaginal epithelium, growth of the glands of the cervix and body of the uterus to the interval condition, probably some repair of ciliation of the tubes and, toward the end of this interval, the initiation of growth in the mammary gland tree including the nipple. Ovulation in woman, as judged from the recovery of tubal ova,[18] occurs on, or one or two days before the fourteenth day following the onset of previous menstruation in the regular twenty-seven or twenty-eight day cycle. There may, of course, be considerable variation in ovulation time in irregular cycles.[19] Following ovulation, as the ruptured follicle becomes transformed into the corpus luteum, there is a continued elaboration of follicular hormone by this tissue. Therefore, theelin from the corpus luteum must enter the blood stream along with such specific corpus luteum hormones as progestin, resulting in premenstrual transformation of the endometrium and in continued growth of the mammary glands. Ovulation with corpus luteum formation, although essential for the premenstrual endometrium transformation, is not necessary for menstruation.

Decrease in amount of theelin due to atresia of large follicles in normal animals or to cessation of theelin dosage after a series of injections in ovariectomized monkeys causes the onset of menstruation in the next few days.[20] Theelin, alone of ovarian hormones, seems sufficient to supply the essential mechanism of menstruation. That the anterior lobe of the hypophysis is concerned in some way has been shown by the recent work of Hartman, Firor and Geiling.[21]

In the case of pregnancy, the human corpus luteum continues the secretion of theelin through the third or fourth months at least. During the latter half of pregnancy this function wanes. The human corpus luteum probably loses the function of the production of progestin before the end of the third month, or, at least, continuation of this secretion is not essential to normal gestation. Beginning toward the end of the second month and in increasing amounts with the continuation of pregnancy and growth of the placenta, the chorion and then the placenta probably participate in the secretion of theelin.[22] This continued secretion of theelin during pregnancy is probably sufficient to explain the inhibition of menstruation during gestation. Toward the end of gestation, theelin and progestin undoubtedly exert a marked effect on the mammary glands. Most specific actions attributed to corpus luteum hormones apparently require a preparation by the growth stimulation of theelin first. The action of corpus luteum hormones is therefore directly complementary to the action of theelin.

SPECIES DIFFERENCES

There are many striking species differences in occurrence and action of these various hormones. So far as is known, theelin is present in the ovarian follicles of all mammals. To date, there have been no exceptions recorded. Progestin may be found in all corpora lutea during part of their functional life, but it is quite probable that the time during which it is effective during gestation varies considerably. The species difference in theelin secretion of the corpora lutea of woman and those of the cow, ewe and sow has been emphasized. Hisaw's corpus luteum hormone (relaxin), which causes the resorption of the symphysis pubis of the pocket-gopher and the relaxation of the pelvic ligaments of the guinea-pig, and which has been identified in the blood of the pregnant rabbit, has not been identified in human blood. The corpus luteum hormone which causes the mucous transformation of the superficial layers of the vagina in rodents is probably not present in the human corpus luteum, for these marked vaginal changes peculiar to rodents are not present in such a degree in the human vagina.

Another species difference in endocrine function is present in fetal membranes. Theelin can be extracted in large quantities from human placenta and from the umbilical cord. It is also present in the chorion of the horse and the cotyledonary placentas of the sheep and cow and may be recovered from amniotic fluid. So far, however, all tests of the zonular placentas of cats and dogs and the button placentas of rodents have been negative.[22] Other important species differences have been reported by Snyder and Wislocki.[23] in the hormone content of urine of different animals during pregnancy.

Some of these species differences are of the same order of magnitude as the species differences recently recorded for the gonad stimulating hormone of the anterior lobe of the hypophysis. The action of this substance on the mammalian ovary has been the subject of many recent papers (Smith and Engle, Zondek and Aschheim). In certain amphibians it has little effect on the ovary but a marked effect on the testis.[24] Another major species difference has been demonstrated in the hormone control of mammary gland growth. Corner [25] reported maximum growth stimulation of the mammary glands by injections of extracts of the anterior hypophysis in ovariectomized rabbits. Negative results were reported in similar experiments in the rat by Evans.[26]

SUGGESTIONS AS TO THERAPEUTIC USES

It has been shown in many animal experiments that the follicular hormone does not stimulate the development of follicles in the ovaries. Consequently primary hypo-ovarian conditions should probably be treated with anterior hypophysis extract when that is purified and biologically standardized. In cases of amenorrhea or scanty menstruation of long duration, treatment with follicular hormone has in a certain percentage of cases started cyclic activity which has in some instances persisted after cessation of treatment.[27] In other cases it has not proved effective. Disturbances in the secretion of other endocrine glands, especially the anterior hypophysis and thyroid, should be ruled out before administration of theelin.

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[18] Allen, Edgar; Pratt, J. P.; Newell, Q. U., and Bland, L. J.: Human Ova from Large Follicles; Including a Search for Maturation Divisions and Observations on Atresia, Am. J. Anat. **46**: 1-53 (July) 1930; (footnote 9).

[19] Pratt, J. P.; Allen, Edgar; Newell, Q. U., and Bland, L. J.: Human Ova from Uterine Tubes, J. A. M. A. **93**: 834-837 (Sept. 14) 1929.

[20] Allen, Edgar: Effects of Ovariectomy upon Menstruation in Monkeys, Am. J. Physiol. **85**: 471-475 (July) 1928. Powers, H. H.; Varley, J. R., and Morrell, J. A.: Preliminary Note on the Assay of the Follicular Hormone by Vaginal Administration, Endocrinology **13**: 395-398 (July-Aug.) 1929. Allen, Edgar: Further Experiments with an Ovarian Hormone in the Ovariectomized Adult Monkey, Macacus Rhesus, Especially the Degenerative Phase of the Experimental Menstrual Cycle, Am. J. Anat. **42**: 467-487 (Nov.) 1928.

[21] Hartman, C. G.; Firor, W. M., and Geiling, E. M. K.: Anterior Lobe and Menstruation, Am. J. Physiol. **95**: 662-669 (Dec.) 1930.

[22] Allen, Edgar: Hormone Content of the Placenta and Chorionic Membranes, Proc. Soc. Exper. Biol. & Med. **24**: 608-611 (March) 1927.

[23] Snyder, F. F., and Wislocki, G. B.: The Effect of Ovulation in the Rabbit of the Injection of Urine from Pregnant Mammals, Anat. Rec. **48**: 34 (Feb.) 1931.

[24] Burns, R. K., and Buyse, Adrian: The Effect of Administration of the Anterior Hypophysis upon the Immature Gonads of Amblystoma Larvae, Anat. Rec. **48**: 12 (Feb.) 1931. Adams, A. Elizabeth: Egg Laying in Triturus Viridescens Following Implants of Pituitary Glands of Bufo Terrestris, Anat. Rec. **48**: **37** (Feb.) 1931.

[25] Corner, G. W.: Hormonal Control of Lactation; Non-Effect of Corpus Luteum; Positive Action of Extracts of Hypophysis, Am. J. Physiol. **95**: 43-55 (Oct.) 1930.

[26] Evans, H. M.: Sex Differences in the Response of the Rat to Hypophyseal Growth Hormone, Anat. Rec. **48**: 18 (Feb.) 1931.

Several reports have shown that theelin is sometimes effective in the treatment of extreme menopause symptoms, either operative or natural. A declining dose would be indicated in an effort merely to adjust the patient gradually from effects which are undoubtedly due to deficiency of this hormone.

Progestin would be indicated for therapeutic use in cases in which repeated difficulty in carrying the embryo through the early stages of gestation is encountered. It might also be used later in pregnancy in combination with theelin to carry on the stimulation of growth in undeveloped mammary glands. First, however, it must be standardized biologically. The matter of the rather difficult test reaction for this active substance, at least compared with that for theelin, will probably postpone the early therapeutic use of progestin.

SUMMARY AND CONCLUSIONS

1. The outstanding animal reaction to follicular hormone, "theelin," is growth of the accessory genital tissues.
2. Sources of theelin in human tissues have been partly explored with quantitative methods.
3. Specific reactions attributed to the corpus luteum hormones are outlined and discussed.
4. A conception of the essential mechanism underlying the menstrual cycle based on recent experimental evidence has been outlined.
5. Several interesting species differences in sources and reactions of various hormones in different animals have been reported.
6. Suggestions are made as to therapeutic uses of ovarian hormones.

ABSTRACT OF DISCUSSION

Dr. J. P. Pratt, Detroit: Dr. Allen has emphasized the variation in physiologic response among different laboratory animals when injected with theelin. This variation is even more striking in human subjects. He has shown photomicrographs that demonstrate extensive growth of vaginal epithelium at the height of the sexual cycle, and a similar growth in response to theelin. That a similar growth of vaginal epithelium does not occur in the human subject has been proved by examination of vaginal epithelium removed at the time of hysterectomies performed at different phases in the menstrual cycle. Another opportunity for comparison is presented by the growth response following the injection of theelin. In animals this involves not only the uterus but the accessory organs as well, while in human beings only the uterus responds. It is not easy to measure accurately the amount of growth. In certain individuals, however, the build is such that the whole uterus can be palpated and a fair estimate of its size is possible. In one such individual, who had amenorrhea of many months' duration, I injected theelin at intervals. Following the injections the uterus enlarged, but not always to the same extent. At times, during the enlargement the consistency was firm; at others, it was moderately soft. The cause of this variation is not readily explained. The clinical indications for trying the effect of theelin are disturbances of menstruation, particularly amenorrhea. In primary amenorrhea, results have not been satisfactory. In cases of scanty and infrequent menstruation, a few satisfactory results have been obtained. One patient, followed for five years, menstruates regularly and in fair amount so long as thyroid and theelin are administered, but if either of these is withheld menstruation ceases. It would seem, then, that there is a limited group of women who have a theelin deficiency and that the theelin can be supplied artificially.

Dr. Emil Novak, Baltimore: Dr. Allen has stressed the fact that the outstanding physiologic effect of theelin is its stimulation of growth, and his sections confirm this view. I was interested in his statement that ciliary growth may be increased by the follicle hormone. In the common gynecologic disorder spoken of as functional uterine hemorrhage there is an associated hyperplasia of the endometrium produced by a relative increase and persistence of the follicle hormone. In cases of this type I have found cilia apparently increased, for they are certainly rare under normal conditions, even if sought for in fresh tissue, the most satisfactory method. With hyperplasia, on the other hand, one may find strips of mucosa almost identical with that in the tube, with a considerable sprinkling of ciliated cells. In this condition there is often a hypersecretion of the cervical glands, characterized by a mucoid leukorrhea, comparable to the hypersecretion noted by Dr. Allen in his experimental work. With regard to therapeutic applications, the condition that perhaps first suggests itself as justifying the use of theelin is amenorrhea. But if one considers the fact that theelin cannot possibly, even in a substitutional way, reproduce in the endometrium the histologic changes of the menstrual cycle, that at best it can bring about only the growth changes of the follicular phase, its limitations are at once apparent. If one adds to this the fact that the treatment must be repeated month after month, entailing usually large numbers of disagreeable hypodermic injections, one's enthusiasm is still more dampened. It is true that in a small proportion of cases one can produce some bleeding by theelin treatments, whether given hypodermically or by other routes, and that women may be encouraged or satisfied with this result. But one should not delude oneself into thinking that one has brought about menstruation. Such bleeding is comparable rather to the estrual type of bleeding seen in the lower animals. And then there is the uncertainty as to dosage in the human patient. Marrian and Parks have shown that while the standard effect of the rat unit is the production of vaginal cornification, about 200 times this amount is necessary for the production of copulation and of the typical estrual histologic changes in the endometrium. The human being is many hundreds of times heavier than the rat, and this ratio, multiplied by 200, would suggest the proper dosage for human patients. It is so great as to make present efforts seem wofully inadequate. Theelin will no doubt find important applications some day, but up to the present its use in gynecology has not yielded important results.

Dr. Edgar Allen, Columbia, Mo.: I should have mentioned that the sections of the monkey tissues that were shown are to be compared with the castrate condition. Of course, the interval stage shows considerable development when contrasted with the castrate condition. I agree with Dr. Pratt that probably there is more promise in the therapeutic use of anterior hypophysis preparations than in ovarian extracts, just as there would be in the case of the male sex hormone, as Dr. Moore pointed out. I doubt whether the possible therapeutic uses of theelin have been completely tested. There is one point in Dr. Novak's discussion to which Dr. Hartman, Dr. Corner and I have been giving much consideration; namely, as to whether the bleeding from the endometrium of castrate monkeys after the dosage of theelin has been stopped is truly menstruation. So far we have been unable to distinguish it, without examination of the endometrium, from menstruation following ovulation. Just preceding the menstrual flow the edema of the endometrium is typical. The glands do not undergo the premenstrual transformation, but that is not necessary for menstrual bleeding. Typical desquamation of the surface layers of the endometrium and menses follows cessation of injections of theelin in castrate monkeys.

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[27] Pratt, J. P.: Clinical Use of Ovarian Hormone (Theelin), Proc. Internat. Sex Cong., August, 1930.

TISSUE RESISTANCE AND IMMUNITY*

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There is nothing more intriguing in the study of disease than the attempt to correlate changed functional activity with structural alteration. The precise chronological relationship of the one change to the other continues debatable and still divides those who have thought about it into two camps, but I know of no greater thrill that can come to a scientist than an observation, however minute, that evidences a new structure-function parallelism.

In immunology the explanatory pendulum has swung from structure to function, from phagocytes to antibodies, and is now, I believe, in the course of describing a larger arc of structural emphasis. I hope to convince you that this newer structural basis of immunity has contributed information not only of theoretical value but also endowed with practical possibilities of the greatest significance.

But before turning to immunity proper, let me begin by referring to certain obvious examples of quantitative and qualitative cell changes in adaptation to physical and chemical injury, some of which have long been recognized and to others which are merely suspected.

TOLERANCE TO PHYSICAL AND CHEMICAL INJURY

The skin is a relatively impervious tissue which fits it for its exposure to external injury. When subjected to intermittent pressure by an unyielding instrument it protects itself readily by the hyperplasia with which we are all familiar in callus formation.

Even more significant than these protective hyperplasias are the replacements of injured tissues by more impervious ones. It is that omnipresent patching material, the connective tissue, which is here predominant. Scar tissue in general, whether closing an incised wound, or replacing the ruptured coat in an aneurysm, or encysting a foreign body, an abscess, or a living parasite presents familiar examples of this metaplasia.

An interesting metaplasia in response to chemical injury has recently been described by MacNider.[1] Uranium nitrate produces a nephritis in dogs by localized injury of the epithelium of the proximal convoluted tubules. A proper initial dose of the poison is followed by more or less complete functional recovery. When the recovery is complete the tubules are found to be relined with their original epithelium, and such animals are as susceptible as normal animals to uranium nephritis. When functional restoration is less complete the tubules are relined, not with the original epithelium but with a flat nonspecialized type of cell which is insusceptible to a second graded dose of uranium.

This instance of acquired tolerance to a chemical disease agency is an interesting one since we possess no other morphologic basis for conditions of this sort.

The emergence of "arsenic fast" and "dye fast" spirochetes and protozoa is a significant problem in modern chemotherapy. These more or less specific drug fast parasites are in some way individually and hereditarily resistant.

The mechanism of the acquired tolerance of man and certain experimental animals to morphine has involved much inquiry. It is now generally agreed that no neutralizing substances are present in the blood of these habitués and we have been forced to assume that the normally susceptible brain cells have somehow become resistant. Meyer and Gottlieb[3] actually found more morphine in the brain of habituated rats than in controls.

I need hardly say that these scattered instances that I have recalled of a structural or functional basis for chemical and physical tolerance are a mere suggestion of what may eventually be known.

PHAGOCYTOSIS AND NATURAL RESISTANCE

When we turn to the consideration of the varying forms of natural resistance and acquired immunity from living disease agents, we find at once a firmer and wider structural basis of explanation. The clear demonstration by Metchnikoff that the cells of the host are actively concerned in its defense against invading parasites remains not only the first but the most fundamental explanation of immunity. The basic significance of the "phagocytic theory" of immunity was not widely or adequately appreciated until its recent extension along lines to which I now wish to direct attention.

Metchnikoff originally outlined his theory in the absence of any information on the humoral aspects of immunity. His observations were confined primarily to conditions of natural resistance, as shown in species differences. The adjuvant effect of opsonins or natural antibodies in this type of protection was not recognized until ten years after the tropin effect of Denys and Leclef[7] had been discovered. The mode of action of at least certain protective serums from hyperimmune animals, as due to their content in tropins, enlarged the phagocytic concept enormously and was in no conflict with the important contribution of humoral immunity except as regards proper emphasis.

The phagocytic theory developed through study of the protective effect of acute inflammation and was based on the essential digestive function of cells of mesodermal origin. In the lower forms in which Metchnikoff first studied digestion, inflammation and phagocytosis, mononuclear cells were involved. In mammals, however, the immediate response in inflammation is an outpouring of the polymorphonuclear cells, and these cells have naturally assumed the major rôle in all studies of the protective effect of inflammation in response to acute bacterial infections. No one questions the rapidity of polymorphonuclear response, their ubiquity and their phagocytic capabilities. They explain natural defense in those numerous conditions in which they are adequate. When they fail, the invading organism is called "virulent" and acute inflammation is an ineffective safeguard.

Throughout the literature, particularly in the study of experimental streptococcus infections, there are numerous references to a delayed phagocytic crisis in which recovery depends on the presence of mononuclear rather than polymorphonuclear cells. Metchnikoff was far from unaware of some of the phagocytic capabilities of mononuclear cells; in fact, it was he who gave them the name of "macrophages." In spite of the significance of such cells in the streptococcus infections to which I have referred, the Metchnikoff school

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[*] Harvey Lecture, read before the New York Academy of Medicine, May 21, 1931.

[*] Owing to lack of space, this article is abbreviated in The Journal. The complete article will appear in the author's reprints.

[*] Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] MacNider, W. deB.: Science 73: 103 (Jan. 23) 1931.

[3] Meyer, H. H., and Gottlieb, R.: Pharmacology, Clinical and Experimental, translated by Halsey, Philadelphia, J. B. Lippincott Company, 1914.

[7] Denys, J., and Leclef, J.: Cellule 11: 177, 1895.

assigned only indirect protective functions to macrophages in acute bacterial infection. They seem concerned primarily with the disposal of animal cells rather than of bacteria, except those bacteria which produce chronic processes such as tuberculosis and leprosy, in which they are obviously actively phagocytic. Macrophages phagocytose red blood cells, and polymorphonuclears that may already have ingested bacteria.

The direct phagocytic relationship of macrophages to spirochetes and protozoa was clearly stated by Metchnikoff and has been increasingly emphasized.[12] In malaria, and in kala-azar and with the various spirochetes of relapsing fever, mononuclear phagocytosis and destruction are evident and selective. In addition, the essential though indirect action of these cells on the chemotherapeutic action of drugs has been clearly proved in spirochetal and trypanosome infections.

THE MACROPHAGE SYSTEM

When an inflammatory exudate passes from an acute to a subacute stage, the polymorphonuclear cells or microphages are replaced by macrophages. It was natural for earlier students, such as Adami [13] and others, who studied this condition to trace the origin of these cells to the large mononuclears (monocytes) of the circulating blood or to the endothelium of capillaries. Although Metchnikoff definitely includes endothelium, Kupffer cells and the reticulum cells of spleen and lymph nodes with the monocytes in his "macrophage system," he was in no position, with the methods available in his time, to penetrate deeply into the intergenetic relationships involved.

In recent years the increasingly active work by leading histologists, Ranvier,[14] Mallory,[15] Evans, Sabin,[16] Maximow [17] and Lewis,[18] to mention only a few of the more important investigators, has done much to establish the genetic interrelationship of the phagocytic mononuclear cells of mammals. By the use of tissue cultures and vital and supravital stains, by embryologic studies, by the study of pathologic conditions, and in the production of inflammatory exudates, a related group of cells of common origin in the mesenchyma, and less certain interconvertibility in adult stages, has been correlated. For convenience, this group of cells has usually been referred to as the "reticulo-endothelial system." [19] This designation with its morphologic implication is not wholly desirable, and, as phagocytic activity or potentiality is the predominant characteristic of these cells, it seems better to call it simply the "macrophage system."

Few final conclusions can yet be drawn as to the precise relationship of these cells to one another. In attempting to disentangle the confusing mass of data that are currently available we can point out certain generally accepted cell types but must realize that all gradations occur between them. It is in regard to the origin of one type of macrophage from another in the adult that greatest dispute arises. The question at issue is whether any one of the type cells may be transformed under functional stress into any other (unitarian theory) or whether there are shifts possible only in certain directions. To one who is not an active participant in these lines of investigation, simplification along the lines suggested by Maximow and by Lewis is the more appealing. The cells are all, to a varying and differential degree, phagocytic, which would tend to a functional unity apart from morphologic differences, and yet from the standpoint of various infectious agents the functions of the different cell types might well be separated.

In the accompanying diagram I have endeavored to depict the type cells of the macrophage series as they occur in different parts of the body and to show the potential transformations of one type of cell into the other. The heavy arrow lines indicate transformations that are more generally accepted, whereas the broken lines indicate possible transformations that rest on less, or at times simply more recent, information. The main supporters of each possible cell transformation are indicated on the lines which extend from the supposed cell of origin to its changed type.

Clasmatocytes.—These cells, originally described by Ranvier, are an essential and normal constituent of connective tissue. They have since been given a number of more or less synonymous appellations, among them "resting wandering cells" or "polyblasts," [17] "tissue macrophages," [20] "histiocytes" or "trailers." [11] The clasmatocytes which should be regarded as in a key position in the macrophage system, are characteristically receptive for vital stains, such as trypan blue, and the supravital stain, neutral red, both of which dyes accumulate in large masses in a vacuolar segregation apparatus and are retained there for long periods. Clasmatocytes may be found in the circulating blood under certain abnormal conditions [24] and may possibly give rise under normal conditions to the monocytes. Maximow and several other authors believe that interchange between fibroblasts and clasmatocytes is possible, but this assumption should be regarded as unlikely.

Monocytes.—The large mononuclear cells or monocytes of the circulating blood are characterized by a relatively large amount of protoplasm and an eccentric indented nucleus. They constitute from 4 to 8 per cent of the total leukocyte count. They do not take vital stains in the large masses characteristic of clasmatocytes. There seems undoubted evidence both by tissue cultures and by studies of chronic inflammation that these cells take part in the increase of tissue macrophages with coincident change in their staining characteristics. Three possible sources of monocytes from the other types of cells have been given, namely, from lymphocytes [2] from capillary endothelium [16] and from clasmatocytes. I am inclined to believe the origin from lymphocytes as the most certain of these sources.

Endothelium.—These fixed tissue cells are supposedly of direct origin from the fixed mesenchymal cells. They are believed by Mallory and others to give rise to the histiocytes of connective tissue, to the epithelioid cells of tubercles and even to the cells free in serous cavities,[26] although the latter possibility is not now generally believed.

Other Fixed Tissue Macrophages.—The lining cells of the spaces of the liver (Kupffer cells) and the reticular cells in spleen and lymph glands are recognized

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12. Linton, R. W.: Reticulo-Endothelial System in Protozoan Infections, Arch. Path. **8:** 488 (Sept.) *1929.*
13. Adami, J.: Inflammation, London, Macmillan & Co., 1907.
14. Ranvier, L.: Compt. rend. Acad. d. sc. **110:** 165, 1890.
15. Mallory, F. B.: J. Exper. Med. **3:** 611, 1898.
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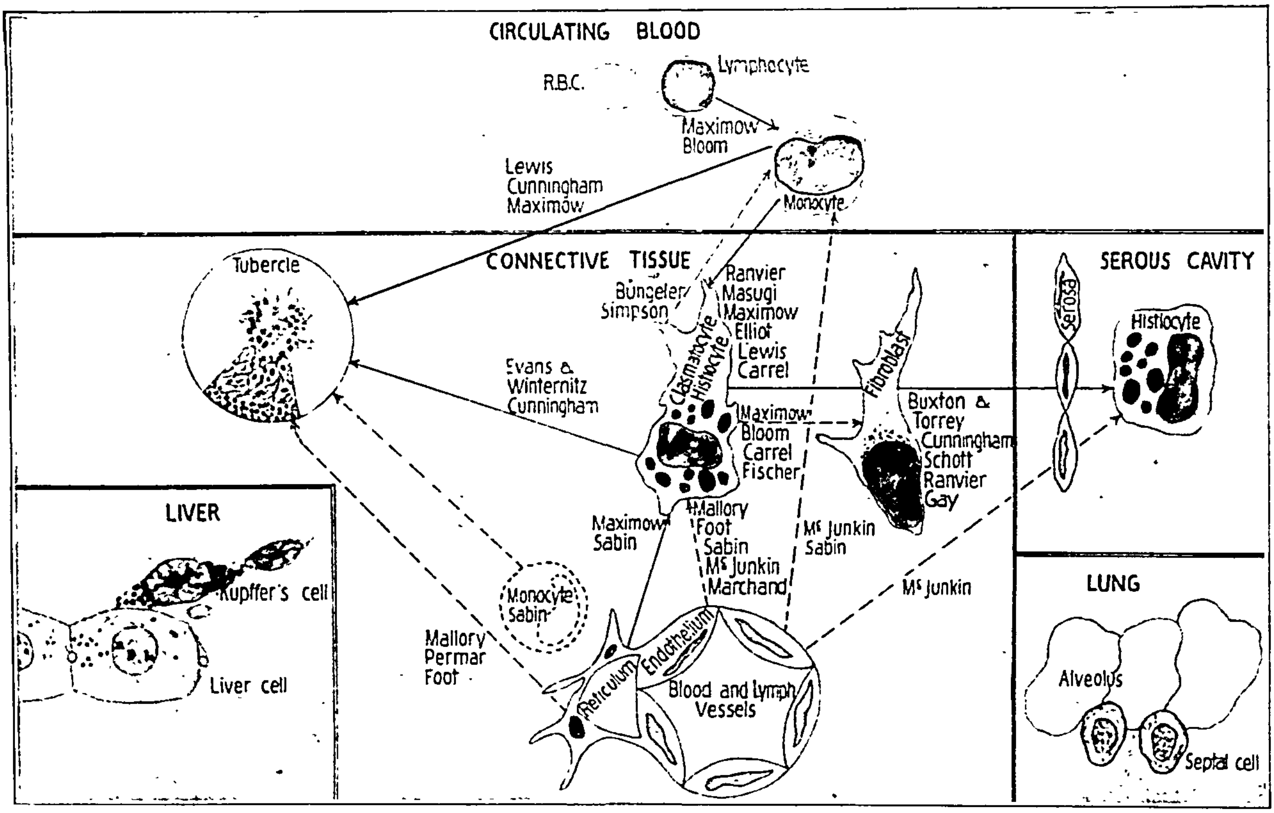
17. Maximow, A. A.: The Morphology of the Mesenchymal Reactions, Arch. Path. **4:** 557 (Oct.) 1927; Arch. f. exper. Zellforschung **5:** 169, 1928.
18. Lewis, W. H.: The Harvey Lectures of the Harvey Society of *New York, 1925-1926.*
19. Aschoff, Ludwig: Ergebn. d. inn. Med. u. Kinderh **26:** 1; 1924.
20. Evans, H. M., and Scott, K.: Carnegie Institution of Washington, D. C. **10:** 48, 1921.
24. Simpson, M. E.: J. M. Research **43:** *77 (April-May) 1922.*
26. McJunkin, F. A.: Am. J. Path. **1:** 305 (May) 1925.

as being actively ameboid and phagocytic. The septal cells lining the pulmonary alveoli, which have long been known to be phagocytic for dust particles, are now becoming recognized as mesenchymal in origin and phagocytic in function rather than from the epithelium.[27]

We are concerned here, of course, with infections and I may simply mention in passing that the mononuclear group of cells which I have just described is apparently of vital significance in such processes as carbohydrate metabolism, iron metabolism and blood destruction and formation, and lipoid storage, particularly as is shown in its derangement in the diseases known as xanthomatosis.

The implication of the macrophage system in these various functions and in the various processes of resistance and immunity to animate agents of disease is evidenced by abnormality in the way of hyperplasia or destruction in individual instances of recovery or fatality, but more particularly through experimental attempts that have been made to interfere with the constituent cell groups. This interference has been brought about by the destruction or mechanical removal of certain constituent parts of the system through spleen ablation or the use of poisons, such as benzene and x-rays, that are known to affect the hematopoietic system. Or, again, stimulation or blockade of the system has been attempted by the injection of various materials that have been shown to localize in macrophages.



The supposed intergenetic relationships and convertibility of cells of the "macrophage (reticulo-endothelial) system" of mammals. The authorities mainly responsible for the supposed changes are given on the arrowed lines. Heavy lines indicate more generally accepted type cell changes; dotted lines show less authenticated or more recent conceptions.

I have already suggested that we may eventually learn to distinguish certain specific functional reactions for different bacteria and parasites in such relatively distinct cells as the endothelium, the monocytes and the histiocytes. It is equally possible that specific stimulants for each of these types of cells may eventually be recognized.

The so-called blockade of the reticulo-endothelial system will be analyzed in more detail a little later. Dyestuffs such as carmine and inert particles such as the carbon of india ink have been used for this purpose and also colloidal preparations of iron and silver, to say nothing of colloidal dyestuffs such as trypan blue and isamine blue. These substances are invariably electronegative. There can be no question that an attempted blockade of this sort, which is never complete, may result in two apparently diverse but wholly consistent processes; that is to say, on the one hand in stimulation of the phagocytic cells, which are known to store this material and therefore, in their increased activity, or, on the other hand, in interfering seriously with their other metabolic functions.

When we turn directly to the results of interference with the macrophage system, by the means that I have indicated, we find that infection in the normal animal is either facilitated, that is to say, the system has been thrown out of function, or, on the other hand, infection is prevented, which means that the macrophage system has been stimulated to greater activity.

As a reverse of the process of infection it has been shown that the injection of bacteria intravenously may interfere with the segregation of dyestuffs from the general circulation by these cells. I have already referred to the essential participation of the macrophage system in chemotherapy. Arsenicals and other parasitic therapeutic agents may fail to sterilize animals infected with spirochetes and protozoa when spleen removal or blockade has been employed.[36]

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[27] Fried, B. M.: Origin of Histiocytes (Macrophages) in Lungs, Arch. Path. & Lab. Med. 3: 751 (May) 1927.

ENHANCED RESISTANCE

The search for macrophage attracting substances is important as a means of increasing natural resistance to local infection. The experience that Morrison and I had in preventing streptococcus infections in the susceptible pleural cavity of rabbits convinces us that remarkable increase in resistance results when sufficient clasmatocytes are present. The older observations on the beneficial results of a macrophage crisis have been amplified by showing that different areas in a given animal vary in their resistance to streptococcus infection in accordance with macrophage availability. Pleural cavities prepared long enough beforehand by indifferent substances such as broth or aleuronat are lined with granulation tissue containing numerous clasmatocytes and are highly resistant, whereas acutely inflamed cavities with polymorphonuclear infiltration are not protected.[37]

Once mobilized, there is no difficulty in demonstrating that clasmatocytes selectively phagocytose streptococci as compared with polymorphonuclear cells also present. The relative longevity of clasmatocytes has been shown by Lewis's experiments. The main virulence factor in the streptococcus would seem to be its leukocidin production, and we have recently found that, whereas both polymorphonuclears and mononuclears may phagocytose streptococci, the former are destroyed by leukocidin whereas the latter resist its effect.

The results in experimental infections with a highly virulent streptococcus are in one respect exceptional. They are certainly not to be paralleled in experimental infections of the same animal, the rabbit, with organisms of the *Pasteurella* group, with *Spirochaeta pallida* or even with the pneumococcus. Careful analysis of the pneumococcus problem will show presently, however, that, although macrophages alone will not protect, they are critically effective under conditions in which the polymorphonuclears are again wholly inadequate.

The only point I wish to make here is that mobile mononuclear cells, when present, are more efficient than the polymorphonuclears in combatting at least one type of acute bacterial infection and justify us in referring to this condition as one of enhanced natural resistance.

One should, I believe, refer at this point to the second and current phase of Besredka's work[43] on what he refers to as local immunity. Irrespective of any practical usefulness of this method in therapy, I believe there can no longer be any doubt that the effect produced is a nonspecific one. Besredka's so-called desensitizing effect is simply *an enhancement* of natural resistance through clasmatocyte stimulation. The work of Morrison and myself clearly showed the mode of action of plain broth, and Gratia,[44] Mallory and Marble,[45] Miller,[46] and Freedlander and Toomey[47] have all shown that Besredka's "antivirus" is no more effective than uninoculated broth.

ACTIVE IMMUNITY

The results obtained in those striking though rare instances of passive immunity by injecting the serum of hyperimmune into normal subjects has unquestionably led to the exaggeration of the importance of antibodies in active immunity. Not only are antibodies of whatever variety present in smaller amounts in the actively immune animal than in those artificial producers of an antiserum, but they may actually be entirely lacking in individuals who are most highly protected against an infection through recovery, following typhoid, for instance. At all events, a reconsideration of the importance of the tissues, as contrasted with the fluids, in conditions of active immunity has begun in recent years.

My work with Morrison[23] in 1923 strongly evidenced that destruction of the streptococcus in actively immune rabbits is due to increased responsiveness of the clasmatocytes, and these results were more conclusively demonstrated by streptococcus infection in various parts of the body by Bass[49] two years later. The precise mechanism of general active immunity has, however, been even more fully studied with the pneumococcus by Singer and Adler,[50] by Tudoranu[51] and by Wright.[52] They all agree that, in active immunity against types I, II and III pneumococci, antibodes are indeed present but final disposal of injected cocci is referable to macrophage phagocytosis. Although their conclusions are doubtless correct, it is hard to be sure of the precise relative importance of the tropin action of the specific antibodies which are also present. In Tillett's[53] experiments, however, with panimmunity against the several types of pneumococci produced by R strains derived from any type, no type specific antibodies are present and protection must be due to cell activity. Tillett notes that whole blood is more effective than serum in the limited passive immunity produced by the serum of these actively immune animals, and although anti-R species-specific immune bodies are present, the cell effect must be the more important one.

Another quite different instance of pure histologic immunity has been carefully described in the studies on bird malaria by the Taliaferros[54] and by Cannon and Taliaferro.[55] There is no evidence of humoral or indeed of intracellular antibodies in the latent infection of canaries by *Plasmodium cathemerium*, but the splenic phagocytes are actually increased and superinfection leads to a rapid disposal of the parasite by a mononuclear phagocytosis that is apparently qualitatively as well as quantitatively superior.

LOCAL IMMUNITY

The study of conditions of active local immunity as contrasted with active general immunity has thrown the greatest light on the precise mechanism of the state as a whole. When I undertook the study of experimental erysipelas in the rabbit with Miss Rhodes[56] some years ago it seemed impossible to be sure that the condition of local immunity described by Wassermann and Citron[57] was anything more than local mobilization of antibodies coincident with a state of general active immunity. Our results convinced us that a locally superior mechanism for the disposal of bacteria could be produced without a generalized protection of other areas. In other words, the skin could be protected by skin immunization without increasing the resistance of the pleura or the body as a whole.

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[36] Jungeblut, C. W.: Ztschr. f. Hyg. u. Infektionskr. **107:** 357, 1927.

[37] Gay, F. P.; Clark, Ada R., and Linton, R. W.: Histologic Basis for Local Resistance and Immunity to Streptococcus, Arch. Path. **1:** 857 (June) 1926.

[43] Besredka, Alexander: Local Immunization, Specific Dressings (edited and translated by Dr. Harry Plots), Baltimore, Williams & Wilkins Company, 1927.

[44] Gratia, A.: Compt. rend. Soc. de biol. **89:** 826, 1923.

[45] Mallory, T. B., and Marble, A.: J. Exper. Med. **42:** 465 (Oct.) 1925.

[46] Miller, C. P., Jr.: Ztschr. f. Hyg. u. Infectionskr. **107:** 253, 1927.

[47] Freedlander, S. O., and Toomey, J. A: J. Exper. Med. **47:** 663 (May) 1928

[49] Bass, F.: Ztschr. f. Immunitatsforsch. u. exper. Therap. **43:** 269, 1925.

[50] Singer, E., and Adler, H.: Ztschr. f. Immunitatsforsch. u. exper. Therap. **41:** 71, 468, 1924.

[51] Tudoranu, G.: Ann. de l'Inst. Pasteur **40:** 606 (July) 1926.

[52] Wright, H. D.: J. Path. & Bact. **30:** 185 (April) 1927.

[53] Tillett, W. S.: J. Exper. Med. **45:** 713 (April), 1093 (June); **46:** 343 (Aug.) 1927; **48:** 791 (Dec.) 1928.

[54] Taliaferro, W. H., and Taliaferro, L. G.: J. Prev. Med. **3:** 209 (May) 1929.

[55] Cannon, P. R., and Taliaferro, W. H.: J. Prev. Med. **5:** 37 (Jan.) 1931.

[56] Gay, F. P., and Rhodes, Bernice: J. Infect. Dis. **31:** 101 (Aug.) 1922.

The absence of demonstrable generalized antibodies is a correlative phenomenon in local immunity that has been particularly emphasized by Besredka in his studies. The practical appeal of this author's work in mouth immunization against enteric infections, and skin immunization against anthrax has done much to awaken general interest in local immunity. But here again I differ with him radically on the theory involved, and theory, as ever, rather than practice, is the finger that points to future discovery. The possibilities of active immunization against bacteria by the unobjectionable method of swallowing them was demonstrated by Pasteur in chicken cholera, and there seems little doubt that vaccination by the mouth against typhoid may be effective. The protection thus produced is not, however, due to closure of the "specific portal of entry" or of an area of lesser resistance, as Besredka assumes, as is shown indirectly in experiments such as those of Ross[58] on general pneumococcus immunity accomplished by the same route. Skin immunization in anthrax may turn out to be the best practical method, but the skin is not the only susceptible area but simply one of several localities that is free enough of phagocytes to allow the anthrax bacillus time to assume its deadly capsule.

The precise cell mechanism of certain instances of local immunity now stands beautifully revealed in the work of Stuppy, Cannon and Falk[59] and of Cannon and Pacheco.[60] Stuppy, Cannon and Falk found that the respiratory tract of rabbits may be protected by spraying cultures of the pneumococcus in the throat. The animals show no evidence of generalized antibody production but are protected against intrabronchial insufflation of the micro-organism. The protective reaction is demonstrably due to an outpouring of mononuclear cells.

Cannon and Pacheco have found that, when intracutaneous infections of staphylococcus are produced in normal guinea-pigs, they respond by a polymorphonuclear phagocytosis. After recovery from repeated doses of staphylococcus vaccine, the inoculated area contains more macrophages than normal and these cells are apparently still further increased and are selectively phagocytic for living staphylococci, which they segregate and prevent from further invasion.

Such experiments suffice to show the importance of the macrophage system in local active immunity, but it may well be asked whether their mere increase in numbers suffices to explain the superiority and specificity of local immunity over enhanced local resistance. The ordinary adjuvant tropin effect so common in general active immunity would seem to be ruled out by absence of antibodies in the blood of these animals. But are not local antibodies present or rapidly produced? This seems strongly indicated in the experiments of Cannon and Pacheco, who speak of a characteristic "agglomeration" of the staphylococci in the immune skin. Can we go further and give any actual basis for a purely hypothetic "umstimmung" or "retuning" of cells so brilliantly imagined by Wassermann and Citron? Is there clear demonstration that accumulated macrophages may be remobilized in adjacent areas? This was certainly shown in my experiments with Linton and Clark and by Linton alone. But such response was not specific in that the accumulated cells of normal animals were involved. Our demonstration that after recovery from experimental erysipelas the entire skin and not simply the recovered portion of it is protected seems also evidence in point.

Much more work is needed before it can be accepted as certain that the phagocytes in actively immunized animals respond specifically by rapid mobilization and perhaps by specifically increased metabolism when the same micro-organism again enters the body. It has for many years been assumed that the leukocytes of immune animals are no different from those of normal animals and that their superior response differs solely through the presence of tropins in the ambient serum. The recent work of Wygodtschikoff and Manuilowa[61] may well lead to a reconsideration of this question. I, myself, am also inclined to attribute the extraordinary hemophagic activity of the immune cells in tissue culture described by Bloom to an inherent and inherited acquired mechanism rather than to adherent tropins as he does. In a similar manner Loewenthal and Micseh[62] have shown that tissue cultures from the spleen of pneumococcus immune rabbits phagocytose pneumococci specifically. Here, indeed, lies a field for future exploration.

ANTIBODY FORMATION

I have given some of the reasons which lead me to assume that the occurrence of antibodies in conditions of actual protection is distinctly subsidiary in importance to that of cell activity. But even so antibodies are of extreme value not only in increasing phagocytosis but also in diagnostic procedures. Passive immunity, furthermore, as at present practiced, depends entirely on a transfer of antibodies. It is therefore of great importance to learn more of the location and method of antibody formation.

Following the discovery of antitoxins, it became important to learn the origin of these extraordinary substances. Buchner[63] assumed that owing to their specificity they must be formed directly from their antigens, and Manwaring[64] and others have recently reconsidered this hypothesis largely on the basis of the undoubted possibility of producing antibodies in a serum-antigen mixture in vitro without the presence of cells. But even in the absence of cells, cell enzymes are present in serum which is in itself an artificial product. At best, the only change which seems to me likely in the general belief that cells form antibodies is that this formation may also to some extent take place in cell extracts and that antibodies might be formed by cellular proteolytic enzymes from antigens rather than built up from host proteins. This might still offer the desirable explanation for specificity and not be inexplicable on the ground of disproportion in dosage[65] or the increase of antibodies after bleeding or following pilocarpine.[66]

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[57] Wassermann, A., and Citron, J.: Ztschr. f. Hyg. u. Infektionskr. **50:** 331, 1905.

[58] Ross, Victor: J. Immunol. **12:** 219 and 237 (Sept.) 1926.

[59] Stuppy, G. W.; Cannon, P. R., and Falk, I. S.: J. Prev. Med. **5:** 97 (March) 1931.

[60] Cannon, P. R., and Pacheco, G. A . Am. J Path. **6:** 749 (Nov.) 1930.

[61] Wygodtschikoff, G. W., and Manuilowa, N. S.: Ztschr. f. Immunitätsforsch. u. exper. Therap. **68:** 480, 1930.

[62] Loewenthal, Hans; and Micseb, Gabriel: Ztschr. f. Hyg. u. Infektionskr. **110:** 150, 1929.

[63] Buchner, H.: München. med. Wchnschr. **40:** 449, 480, 1893.

[64] Manwaring, W. H.: J. Immunology **19:** 155 (Aug.) 1930.

I need not go further into the older ineffective methods of attempting to determine the locus of antibody formation. The most convincing line of attack that has been proposed lies in the use of the various dyestuffs and colloids, already mentioned, which are recognized as having a particular affinity for the cells of the macrophage system. The constituent cells of the macrophage system may be distinctly reduced by removing the spleen and then attempting blockade of the remaining cells. There is unquestionably selective action in accordance with the particular blockading material that is employed and we may well conceive of a direct relationship between the blockading material and the antibody that is being sought for. More convincing results would, I believe, be obtained if a mixture of the materials were used in a given experiment rather than some single dyestuff or blockading substance. Furthermore, much depends on the amount of dyestuff that is used, the duration of the series of injections employed, and whether or not blockade is begun before or simultaneously with injection of the antigen. Unquestionably the amount of antigen employed should be minimal.

In spite of all the difficulties and limitations in attempting to prove that the macrophages are responsible for antibody formation, a careful survey of the literature during the past ten years shows that well over 75 per cent of the investigators have obtained distinct variations in antibody formation when blockade was attempted. This variation has usually been in the form of a decrease, but there are also striking examples of increased antibody formation when "blockading" substances are utilized. The apparently divergent results are wholly consistent. Small amounts of dye stimulate the antibody-producing cells and large amounts throw them out of commission.[67]

When the individual antibodies that have been studied are considered in this regard, there is almost complete agreement that hemolysin production is interfered with by blockade and so also is anaphylactic shock. There is practically no disagreement as to a positive effect of blockade on precipitin formation. Most doubt as to the positive influence of blockade has arisen in connection with the study of agglutinins, and here unquestionably the proper dosage of antigen to blockading material accounts for failure.

MACROPHAGES AND PASSIVE IMMUNITY

The greatest significance of the macrophage system lies in its possible relationship to conditions of passive immunity. The antitoxins to the poisons produced by the diphtheria bacillus, the tetanus bacillus and others are highly effective in neutralizing their respective poisons not only in the test tube but also under actual clinical conditions, provided the toxin has not already become fixed on susceptible cells. There is no reason as yet to assume that the cells of the host are essential in bringing about toxin-antitoxin neutralization, although they may yet be shown to be so.

On the other hand, the failure that has attended the use of antiserums directed against bacteria themselves rather than their toxins is notorious. No antibacterial serum except the one employed against the meningococcus can be claimed to have been markedly successful. This single successful example points, I believe, to the reasons for failure in other instances. As Dr. Clark and I[71] suggested two years ago, the ineffectiveness of antibacterial serums would lie, not in their deficiency in suitable antibody, but in the absence of sufficient tissue response in the normal recipient to complete the tropinizing effect furnished by the antiserum. Passive immunity differs from active immunity precisely in this respect. Antimeningitis serum alone is effective because it is injected in an area in which a cellular exudate is available as well as the parasite.

When we advanced our hypothesis there were few concrete illustrations available to indicate that the addition or stimulation of cells would increase the effectiveness of passive immunity. We had a mere suggestion in our own work[72] that a relatively inefficient antistreptococcus serum may be effective when cell accumulations are present, and in a degree that outstrips the enhanced resistance due to the cells themselves. Jungeblut[73] in agreement with a suggestion from Lippmann's[74] work showed that antipneumococcus serum is ineffective in mice with reticulo-endothelial blockade. The most concrete illustration was furnished by the work of Dr. Clark[75] herself, who showed that, although granulation tissue fails to protect rabbits against type I pneumococcus, as it does against streptococcus, it is differentially protective against slightly tropinized pneumococci that are lethal for normal animals or for animals with a polymorphonuclear exudate.

With these ideas in mind we have been engaged in attempts to render antibacterial serums more effective under experimental conditions, by adding cells or stimulating cells in the passive recipient of the serum. Our results in streptococcus infections made us feel certain a year ago that our hypothesis was in the main correct.[76] We found that the cellular exudate of an immune animal protects a normal animal against the streptococcus better than corresponding immune serum. A normal exudate has no effect when passively transferred. The antiserum has only slight therapeutic value but, when combined with normal cells, is markedly effective.

Our first thought was that this enhanced passive immunity, which we are seeking to perfect, is due to the direct action of the passively transferred cells; but further study leads us to believe that the exudates employed act rather as cell stimulants for the recipient and can perhaps be replaced to advantage by simpler substances. It is our current opinion that stimulation of the macrophages gives more protection than stimulation of the polymorphonuclear cells in their combination with antiserum.

I hope that I have made it apparent that the mesenchymal mononuclear cells, which comprise the macrophage system of mammals, are the elements which constitute the most essential defense mechanism of the body against the living agents of disease. They are superior in this regard to the more readily attracted polymorphonuclears, even in acute bacterial infections. They are not only directly effective through phagocytosis but produce the antibodies which increase their phagocytic power. The striking properties of anti-

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65. Ehrlich: Deutsche med. Wchnschr. **17**: 976, 1891. Knorr, A.: München. med. Wchnschr. **45**: 321 and 362, 1898.

66. Roux, E., and Vaillard, L.: Ann. de l'Inst. Pasteur **7**: 65, 1893. Salmonsen, C. J., and Madsen, T.: Ibid. **12**: 763, 1898.

67. Jungeblut, C. W., and Berlot, J. A.: J. Exper. Med. **44**: 129 (July) 1926.

71. Gay, F. P., and Clark, Ada R.: Science **69**: 604 (June 7) 1929.

72. Gay, F. P., and Clark, Ada R.: J. Infect. Dis. **36**: 233 (Feb.) 1925.

73. Jungeblut, C. W.: J. Exper. Med. **47**: 261 (Feb.) 1928.

74. Lippmann: Ztschr. f. Immunitätsforsch. u. exper. Therap. **24**: 107, 1915.

75. Clark, Ada R.: Rôle of Clasmatocytes in Protection Against Pneumococcus, Arch. Path. **8**: 464 (Sept.) 1929.

76. Gay, F. P., and Clark, Ada R.: J. Exper. Med. **52**: 95 (July) 1930.

bodies have served to exaggerate their importance in actual protection and to obscure the much more important underlying functions of the tissues. Further progress in immunity would seem to lie in understanding differential cell participation better, and therapeutic advances will doubtless attend this increased knowledge.

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IMMUNITY IN VIRUS DISEASES *

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The development of immunity to certain infectious diseases in normal individuals similar to that following an attack of the disease has been tacitly accepted by most students of the subject as being due to subclinical infection with the disease virus. The acceptance of this view not only carries with it far reaching implications in regard to the epidemiology of certain diseases but also would bring into question the feasibility or desirability of carrying out certain preventive measures and would turn lines of investigation looking toward the practical control of certain diseases into entirely new channels. For example, if it becomes evident that a given virus is well nigh universal in its distribution and causes only an immunity in the majority of individuals on initial exposure, which will protect against any subsequent exposure and causes the disease only comparatively rarely, it would appear more logical to search for some other circumstance than exposure to the virus alone, which determines infection rather than subclinical immunization, instead of undertaking the far larger and perchance impossible task of preventing exposure to the virus altogether.

Perhaps, largely for the reason that in certain diseases, for example, poliomyelitis, the extent to which this immunity occurs so far exceeds the demonstrated distribution of the virus, and because in a general way its extent increases with age, the idea of widespread subclinical immunization by the virus has not gone unchallenged, it being held that adult immunity arises spontaneously with increase in age and is not antigenic in origin.

Recent demonstrations of the widespread occurrence of the viricidal action of normal adult serum for poliomyelitis [1] and of a similarly extensive anti-yellow fever serum (in an endemic area) [2] on the one hand, and the finding of precipitins and agglutinations in increasing proportion with age, against such noninfectious agents as sheep and rabbit erythrocytes,[3] antigens that have been presumed never to come in contact with internal tissues, and apparently erroneously so,[4] on the other hand, have raised anew, in the minds of some, the question as to whether such adult immunity to infections is due to previous exposure to their viruses. Editorial discussions under such headings as panimmunity, automatic environmental vaccinations, upsetting immunologic tenets and phylogenetic immunologic recapitulation,[5] relying largely on the observation of the development of "antibodies" to supposedly nonabsorbable antigens, such as sheep and rabbit proteins, come to such conclusions as "Nor can epidemiologic deductions from observed mass immunization be assumed to be more than of tentative validity" or "There are many immunologists who prophesy that a spontaneous maturation panimmunity eventually will be proved." The idea that increasing immunity with age is due to subclinical infection is accepted with reserve by others; for example, "The natural inference is that the immune principle is acquired as a result of subclinical infections . . . though it is possible that it may not rest altogether on this basis.[6]

These discussions do not seem to have taken into consideration any of the features of adult immunity, other than the generalization that it increases with age, and rather assume that it is a universal phenomenon, correlating solely with maturation (increase in age).

In view of the epidemiologic importance of the question as to whether adult immunity is the result of exposure to virus or is merely a maturation phenomenon in regard to the reliance which can be placed in certain control measures and in directing further research on such diseases, a review of cogent data on the subject would seem to be worth while.

In the virus diseases the only antibody or immune reaction the existence of which appears to be generally accepted or for which practical tests are available is the viricidal antibody, as shown by so-called neutralization tests, protection tests or passive immunization, and the as yet questionable curative effect of immune serum. That the viricidal antibody is an indication of exposure to virus is shown by the facts that:

1. It is not found in an animal known not to have been exposed.
2. It can be produced experimentally only by virus.
3. In diphtheria, the test corresponds with the test for antibacterial antibody.

By the use of such tests, data comparable with those for bacterial diseases are in certain instances available on virus diseases while in others, for example poliomyelitis, the restriction imposed by the necessity of using expensive laboratory animals has enabled only limited tests to be made. In such a case the significance of these tests lies not so much in the scope of the observations themselves but more largely in their correspondence with the more complete data relating to immunity in some of the bacterial diseases. Again, some one aspect of the process of immunization may be demonstrable in one disease and not in another, owing, for example, to such factors as variation in areas of prevalence or in adequate technic for the ascertainment of certain phenomena to be studied. For example, yellow fever occurs only in restricted areas, enabling comparisons with areas free of the disease, while diphtheria is practically world wide in its distribution. Or, for diphtheria, a comparatively simple technic is available for the determination of the carrier rate, whereas no satisfactory means are as yet available for

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* The work on which this paper is based was supported by the Harvard Infantile Paralysis Commission, a fund privately donated to the Vermont Department of Public Health and a gift from the International Committee for the Study of Infantile Paralysis.

1. Aycock, W. L., and Kramer, S. D.: J. Prev. Med. **4**: 189, 201 (May) 1930; J. Exper. Med. **52**: 457 (Oct.) 1930. Shaughnessy, H. J.; Harmon, P. H., and Gordon, F. B.: J. Prev. Med. **4**: 463 (Nov.) 1930. Fairbrother, R. W., and Brown, W. G. S.: Lancet **2**: 895 (Oct. 25) 1930.

2. Beeuwkes, Henry; Bauer, J. H., and Mahaffy, A. F.: Am. J. Trop. Med. **10**: 305 (Sept.) 1930.

3. Friedberger, E.; Bock, G., and Fürstenheim, A.: Ztschr. f. Immunitätsforsch. u. exper. Therap. **64**: 294, 1929.

4. Coca, A. F.: J. Immunol. **19**: 405 (Oct.) 1930.

5. Parimmunity, editorial, J. A. M. A. **96**: 775 (March 7) 1931; Automatic Environmental Vaccination, ibid., March 14, p. 866; Phylogenetic Immunologic Recapitulation? ibid., March 21, p. 950; Upsetting Immunologic Tenets, ibid., April 11, p. 1232.

6. Schultz, E. W., and Gebhardt, L. P.: Proc. Soc. Exper. Biol. & Med. **28**: 409 (Jan.) 1931.

the quantitative determination of the carrier rate in poliomyelitis. It is therefore only by the inclusion of a number of diseases that one can gain data on all aspects of the question of adult immunization. By taking advantage of the fact that some one disease of the group offers fairly complete data on some aspect of the problem, I believe that a consideration of the group offers fairly conclusive evidence that adult immunity, whether accompanied by any recognizable manifestations of the disease or not, is a specific acquired immunity and not a maturation phenomenon.

The following considerations are submitted in support of this statement:

1. Experimental immunity has been produced only by the particular disease virus, or its toxin, and has never been produced in any other way.

2. Immunity develops only under circumstances in which association with the virus is possible, and it is absent when the presence of the virus can be definitely excluded. Thus the age distribution of measles in the Faroe Islands in 1846 showed clearly an absence of immunity in persons under 65 years of age in a population known to have been entirely free of the disease for sixty-five years. Similarly, evidence of immunity to yellow fever has been found in a relatively large proportion of the population in southwestern Nigeria, the majority of whom gave no history of previous yellow fever. This extensive immunity to yellow fever has been definitely shown to occur only in endemic areas and is absent in persons who have never resided in the endemic area.

The often quoted prevalence of immunity to diphtheria in certain Eskimo populations has been heralded as an example of the development of immunity in the absence of the diphtheria bacillus.[7] However, the evidence for the absence of the diphtheria bacillus is inconclusive, being based on a single examination of some 200 healthy persons in which no carriers were found. It should be pointed out that in this single observation on such a small group of individuals the finding of even a single carrier, as will be shown later, would have sufficed to account for the immunity existing in this population. It does not necessarily follow that a population previously immunized must harbor the bacillus at the particular time the study was made. Indeed, it was noted at the time that a few years previously clinical cases of diphtheria had occurred in this population. I therefore feel that, in spite of the fact that the diphtheria bacillus was not found on a single visit, it cannot be affirmed that the diphtheria bacillus had been constantly absent from this Eskimo population. Thus we have evidence that immunity develops only when there is association with the virus in question and definitely does not develop when the presence of the virus can be definitely ruled out. None of the editorials mentioned which argue for maturation immunity have taken into consideration this statistical association between immunity and the presence of the virus in question.

3. The development of immunity follows laws of infection and does not follow any law of maturation. As pointed out, it does not occur when the virus is absent. In areas in which the virus is present, it varies in accordance with variations in opportunities for exposure. Thus, while in a general way it increases with age, this varies with the concentration of population in a manner consistent with variation in opportunities for exposure and inconsistent with any law of maturation. That development of subclinical immunity in diphtheria and poliomyelitis follows laws of infection is strikingly emphasized when the rapidity with which it develops with reference to concentration of population is compared with that of clinical immunity to measles, in which disease immunity is always associated with unquestioned infection with the virus.

4. In the case of diphtheria, ample evidence is available to show that the distribution of this organism is of sufficient extent to account for the observed adult immunity to diphtheria. It can be figured from the average carrier rate and the average duration of the carriage that by any given age the proportion of the population exposed would equal the proportion who have become immune.[8] In the case of poliomyelitis, no statistical data are available concerning the carrier rate. However, in view of the difficulties in the technic available and the relatively small number of attempts that have been made to detect these carriers, the occasional finding of the virus in the nasal secretions of healthly persons might well be indicative of a carrier rate equal to that of diphtheria and hence sufficient to explain the immunization of practically 90 per cent of urban individuals by the time they have reached adult age.

DURATION OF IMMUNITY

If the phenomenon of adult immunity is attributed to exposure to virus, it must be implied that immunity from the initial exposure tends to be permanent or that a more or less temporary immunity is reinforced by subsequent exposure often enough to maintain the accumulated immunity observed with increase in age.

It has been shown in several instances that immunization to yellow fever lasts for many years in individuals in whom the possibility of reinforcement of the initial immunity by subsequent exposure can be definitely excluded.[2] On the other hand, experimental immunity in general tends to be temporary and can be maintained only by subsequent "exposures" to virus.

While in different diseases there may be considerable variation in this respect, from the fact that the known distribution of the organism of diphtheria is not only sufficient to account for the increase in the proportion of immunes with increase in age but is ample also to account for the continual reinforcement of immunity by reexposure. One is led to believe that reexposure may be an important factor in the maintenance of adult immunity. This probability is emphasized by the suggestion of some loss of adult immunity in later life corresponding with a period of diminishing chance of exposure, as shown by Chapin in a diminishing attack rate among nonimmune persons. From the observations in diphtheria, which are fortunately fairly complete, it would appear probable that the same mechanism is involved in other contact diseases in which a similar adult immunity is encountered.

From the consideration of a number of diseases, each one of which represents particularly well one or another element involved in adult immunity, one is led to believe that what has been called panimmunity is evidence of paninfection. In the case of those panimmunizing infectious agents which are transmitted by person to person contact it would appear that the host-parasite relationship represents a type of parasitism so well adapted to ordinary and irreducible human contact that there is little hope of bacteriologic control of such diseases, i. e., checking the spread of such a virus.

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[7] Bay-Schmith, E.: Klin. Wchnschr. 8: 974 (May 21) 1929. Heinbecker, Peter; and Irvine-Jones, Edith I. M.: J. Immunol. 15: 395 (Sept.) 1928.

[8] Aycock, W. L., and Kramer, S. D.: J. Prev. Med. 4: 189 (May) 1930.

The effectiveness of artificial immunization is, of course, apparent in diseases in which there is no subclinical immunization, i. e., in which initial exposure and immunization is invariably accompanied by an attack of the disease, as for example measles and smallpox; but in those diseases in which immunization without disease occurs in the preponderant majority of individuals on initial exposure, the practicability of immunologic control would likewise appear to be doubtful.

The correctness of the idea that panimmunity to such diseases has its origin in the disease virus would point to the search for some circumstance other than mere exposure to the virus as the cause of these diseases. In the case of poliomyelitis, evidence has been presented elsewhere[9] which suggests that some discrepancy in physiologic adaption to climate and season may be a major factor in determining disease rather than subclinical immunization on initial exposure to this virus.

This would point to studies aiming toward what I have called autarceologic rather than toward bacteriologic or immunologic control of this disease.

PRINCIPLES OF DIAGNOSIS AND TREATMENT OF ALLERGIC DISEASES*

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By way of introduction to the stated topic of this discussion, it will be convenient to state, as a general basis, the sense in which I should like to use the term allergy and also the classification of the conditions included under it. I intend to use the term allergy in its current medical sense; namely, the diseases of hypersensitiveness in the human being. This arbitrary definition excludes the experimental hypersensitiveness in the lower animal; that is, anaphylaxis.

The allergic diseases of the human being can be tentatively grouped under the headings serum disease, contact dermatitis and atopy. I do not need to define the term serum disease, with which all are well acquainted. By contact dermatitis I mean a dermatitis due to surface contact with the excitant, typified by the condition formerly known as dermatitis venenata. The known excitants of this condition have been found to be nonantigens (for example, the oleoresin of poison ivy, sumac and primrose). No antibodies have been demonstrated in dermatitis venenata.

Since this sensitivity can be demonstrated or induced in a large percentage of human beings (poison ivy, 72 per cent, H. W. Straus; primulin, 100 per cent, B. Bloch), a special hereditary influence cannot be assumed.

By atopy is meant a group of clinical conditions (bronchial asthma, hay-fever, eczema, gastro-intestinal hypersensitiveness and others), which affect a relatively small proportion of the population, about 7 per cent according to Cooke and his co-workers, and which have been shown to be subject strictly to a mendelian hereditary influence. The excitants of this form of hypersensitiveness are usually water-soluble antigens, and when the excitant is an antigen, specific antibodies are regularly demonstrable in the blood with the use of the technic of Prausnitz and Küstner. This technic is as follows: a small amount of serum of the patient (0.05 cc. is sufficient) is injected intracutaneously in the external aspect of the upper arm. After the irritation has subsided, a solution of the suspected excitant is injected intracutaneously in a quantity of about 0.02 cc. At the same time, a control test is made of the same solution in the normal skin. If, after ten or fifteen minutes, the reaction (wheal or erythema or both) in the prepared site is greater than that in the controlled site, the result is taken as a demonstration of sensitizing antibodies in the patient's blood.

The diagnosis of allergic disease must be made in two steps. It is necessary, first, to determine whether the exhibited symptoms are actually those of hypersensitiveness and, secondly, if possible, to determine the particular exciting cause or causes of the symptoms.

The usual symptoms of allergy are familiar; they include those of hay-fever, asthma, eczema, urticaria, angioneurotic edema, various gastro-intestinal symptoms such as pain, nausea, vomiting, diarrhea, migraine and the skin lesions of what was formerly called dermatitis venenata but is now being referred to as contact dermatitis. Less common symptoms of allergy are those of bladder pain (described by Duke), canker sores of the mouth, essential hematuria, and edema of the retina. It seems possible that there are other symptoms of allergic disease that have not been recognized as such.

The recognition of the allergic nature of any of these symptoms, some of which can be due to other causes, may be facilitated if a definite material is suspected as the exciting cause, and the first test can often be made by having the patient swallow or inhale the suspected material or by otherwise coming in contact with it. Naturally the physician must have in mind the dangers attending this method.

It is a fortunate circumstance that in many instances of allergic disease the skin possesses a specific reactivity to the exciting agent. It is an important fact, which is not generally known, that the reactivity of the skin differs constantly in three categories of allergic disease.

In the atopic or inherited group, the skin exhibits a fairly constant and characteristic reactivity (wheal formation) to the introduction of the excitant into the superficial layers through an abrasion (scratch) or by injection. This reactivity has been shown always to be due to the presence of specific antibodies (atopic reagins) which can be demonstrated in the blood of the individual by means of the Prausnitz-Küstner experiment.

When ever the skin fails to react to a properly prepared test fluid, no reagins can be demonstrated in the blood.

Some asthmatic subjects react negatively to all known excitants of asthma. The hereditary influence in these individuals has recently been shown by Cooke to be as strong as it is in asthmatic subjects giving positive skin reactions. The cause of the asthma in these persons is sometimes found to be the probably nonspecific effect of some infection of the upper respiratory tract.

It is seen that in this group of asthmatic persons even the negative result of all the tests is of some value in the diagnosis, in that it directs the physician's attention to the upper respiratory passages and sinuses as the possible source of the trouble.

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[9] Aycock, W. L.: J. Prev. Med. 3:245 (May) 1929.

* From Cornell University Medical College and the New York Hospital.

* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931

The controversy that has been going on as to the relative merits of the scratch and intracutaneous technic is a matter of common knowledge. The differences in the results obtained with the two methods can, I believe, be almost eliminated, first by the use of proper extracts in both cases as well as a proper technic. It has been said that the intracutaneous method causes more nonspecific reactions than does the scratch method, but this would not be true if the intracutaneous test were always properly applied. The nonspecific reactions resulting from the intracutaneous method are usually due to the injection of too large a volume of the extract and they can almost always be avoided if the injected volume does not exceed 0.02 cc.

The scratch method, on the other hand, sometimes fails when the intracutaneous test is successful, and the cause of this failure usually lies in the relative inactivity of the material used for the scratch test. If the extract contains the specific excitant in sufficient concentration, that is, many times that used for the injection test, the results of the two tests will be practically the same.

There is a second group of allergic diseases in which the cutaneous reaction to the known excitant is regularly negative. This comprises the urticarias and angioneurotic edemas occurring without involvement of mucous membranes (for example, nasal, bronchial or gastrointestinal). In such subjects, the known excitant causes no specific reaction when injected into the skin. The extract is not at fault in these instances, for if the same material happens to be the exciting cause of asthma in another person the cutaneous test in that person with the same extract will result positively.

The disadvantage at which the physician is placed by the failure of this group of allergic individuals to react specifically to the cutaneous test with the excitant can be to some extent offset by the use of the feeding experiment, with which the offending food can often be identified. The feeding test, however, sometimes fails when the physiologic reaction is so delayed that it cannot with certainty be referred to the particular food under investigation. Warren T. Vaughan, in his illuminating study of migraine, reports that the cutaneous reactions in this group of cases were often delayed for some hours and he suggests that this delayed reaction was characteristic of that condition.

In a third group of allergic conditions, that known as contact dermatitis, both the intracutaneous and scratch tests with the known excitant result negatively, but the typical lesion can be reproduced by surface application of the extract (for example, that of poison ivy).

The list of excitants of contact dermatitis is constantly growing. It includes a number of materials which contain the excitants of hay-fever and asthma, such as pollens and other vegetable substances, and naturally it has been generally assumed that the excitant of the two categories of hypersensitiveness was the same in all materials. Recent studies by Brown, Milford and Coca have shown this not to be the case with pollen.

The excitant of hay-fever in pollen is a water-soluble antigenic substance. When this substance is freed from the pollen oil, it is incapable of producing dermatitis when applied to the skin surface. On the other hand, the pollen oil freed from the excitant of hay-fever has been found capable on surface application of producing the typical lesion of contact dermatitis.

Bengtson has shown that pollen dermatitis affects persons that are not subject to hay-fever. In fact, the proportion of sensitive persons among the hay-fever subjects is the same, according to Brown, Milford and Coca, as that among those not affected by hay-fever. In all respects, therefore, the pollen dermatitis can be identified with the group of allergic conditions formerly known as dermatitis venenata but now generally referred to as contact dermatitis.

The line of separation between the inherited group of hypersensitiveness designated with the term atopy, and embracing bronchial asthma, hay-fever, eczema, gastro-intestinal allergy and others, and the group of contact dermatitis is thus clearly maintained. In the case of pollen dermatitis, the excitants are different, the one being an antigen soluble in water, the other a nonantigen soluble in fat solvents. The technic of skin testing is different in the two, one requiring absorption through an abrasion in the skin, the other requiring surface application; the one is subject to the atopic hereditary influence and the other is not.

The importance of surface testing in pollen dermatitis was first pointed out, I believe, in the recent papers by Sulzberger and Wise.

These observations also indicate the proper course of treatment of contact dermatitis, that is, by the injection of the oil of the pollen instead of the aqueous extract.

The results point the way also to the proper method of diagnosis and treatment of all dermatitis due to external contact with various excitants. Finally, the results confirm the distinction made in the etiology and mechanism of the inherited eczema and contact dermatitis.

The methods of diagnosis through skin testing have come into a certain disrepute, especially, I believe, among dermatologists. The reasons for this seem to be:

1. Heretofore the dermatologists and some allergists also have not been aware that the usual methods of cutaneous testing (by abrasion and by injection) with aqueous extracts cannot be used in most cases of contact dermatitis.

2. Even in eczema, in which the excitant is water-soluble, the skin test may result negatively either because the extract had been improperly made or because, in the particular case, the excitant of the eczema was not a specific but a nonspecific one affecting the abnormally susceptible skin.

These methods, it is true, are subject to limitations; however, the experienced allergist is aware of those limitations and is constantly seeking ways of overcoming some of them. The experiments of Brown and Milford, which have just been referred to, have provided important information in this direction.

TREATMENT OF ALLERGIC DISEASE

The ideal treatment of allergic disease is the avoidance of the specific excitant when such exists. In not a few instances the exciting cause is not a specific one but an infection, the removal of which sometimes is followed by a cessation of the allergic symptoms.

When the excitant is a specific one which cannot be avoided, as in hay-fever and in some instances of bronchial asthma, resort is had to a procedure that has been incorrectly considered as identical with desensitization in anaphylaxis.

The two procedures are different in the following two ways:

Desensitization in anaphylaxis can be established in a short time (less than twenty-four hours) and is always due to a reduction of the quantity of antibodies in the animal by specific neutralization with the antigen.

The tolerance which can be induced in the allergic human being by injections of the specific excitant usually requires a relatively long time for its establishment (weeks of repeated injections) and is never accompanied by a dimunition of the antibodies (reagins) but often by an increase.

Since this tolerance does not depend on any change in the specific antibodies, it must be due to some alteration of the shock tissue in which the allergic reaction occurs; and one should expect such alteration to be a nonspecific one. However, Aaron Brown has shown that the tolerance is actually specific by demonstrating that, if a hay-fever subject is sensitive to two pollens (for example, grass and ragweed) and is rendered clinically insensitive to one of them, the sensitiveness to the other pollen remains. We are thus obliged to assume a specific tissue desensitization which heretofore has had no analogy in experimental immunology.

Such an analogy has recently been revealed in a study of anaphylaxis in the rabbit by my associate Ella F. Grove, who has been able, by subcutaneous injections of the antigen into sensitized rabbits, to render them insensitive to intravenous injection although the blood of these animals contained ample quantities of sensitizing antibodies. She has shown that this state of tolerance is specific.

8 West Sixteenth Street.

THE RÔLE OF HUMORAL ELEMENTS IN IMMUNITY *

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Before delving into the subjects of humoral elements or antibodies in relation to immunity and their rôle in the diagnosis and treatment of disease, it is fitting to make at least brief reference to newer concepts of their origin and to express deep appreciation of the efforts of those endeavoring to throw off the shackles of theory and tradition and attempt the solution of immunologic problems by the newer methods of physical and biologic chemistry.

Immunology has shown and continues to show so many paradoxes that there is a growing appreciation of the fact that there must be something radically wrong with our time honored basic conceptions and especially with the Ehrlich side-chain theory of immunity, which has dominated thought and research in this field for over three decades. For example, one may mention the fact that the presence or absence of demonstrable antibodies in the test tube may have no apparent relationship to immunity or its absence in the living animal; also that bacterial allergy may not be an index of resistance when one remembers the almost complete absence of correlation between allergy and resistance to tuberculosis and other bacterial infections, including the fact that guinea-pigs possessing antitoxic immunity to diphtheria may yet perish on the injection of a minute dose of diphtheria toxin as a result of toxin hypersensitiveness.

THE NATURE OF ANTIGENS IN RELATION TO HUMORAL IMMUNITY

In the first place, while there is no challenge of the fact that antigens or substances engendering antibody production are protein molecules, yet the newer work of Landsteiner, Avery, Wells and others has indicated that the protein molecule may carry submolecular lipoids or polysaccharides designated as "determinants," which may cause the production of different antibodies and play an important rôle in the mechanism of antigen-antibody reactions in the test tube.

A prevailing thought in chemotherapy is that a chemical compound, such as arsphenamine, does not destroy an organism in the form in which it is administered, but that it first combines with some constituent of the blood or other tissue with the formation of a new compound possessing parasiticidal properties. In like manner, it may be that substances injected or produced in vivo during the course of an infectious disease may combine with plasma proteins, lipoids or other body constituents and the resulting conjugates form the complex antigens responsible for the production of different kinds of antibodies. At least it appears to have been satisfactorily demonstrated that such complex antigens of proteins with lipoids and pneumococcus polysaccharides may be conjugated artificially in the test tube and profoundly alter their specificity.

In this connection, one may surmise that the production of different kinds of humoral antibodies by any one pathogenic organism or other protein substances, such as serum, may be due to their complex chemistry and the chances of possessing or forming in vivo or in vitro numerous submolecular "determinants" having an important relationship to methods employed for the immunization of animals for the production of immune serums and in the preparation of extracts for desensitization in the treatment of human allergies. Also that it may be possible to denature bacterial vaccines during their preparation and thereby lend support to a prevailing idea that vaccines of living bacteria or their unchanged toxins secured by filtration may represent the best vaccinogenic agents.

THE SOURCE AND PRODUCTION OF ANTIBODIES

At present, it is generally surmised that humoral antibodies are produced by cells as the result of stimulation of the latter by antigen; that the antigen may enter into the cell and continue to cause stimulation with the production of antibody over a long period of time and thereby explain why a very small amount of antigen may produce a very large amount of antibody. And, as previously said, it is now apparent that a single antigenic substance may be indeed quite complex, containing several antigens and thereby resulting in the production of different kinds of antibodies. Furthermore, according to this classic point of view, antibodies are in the nature of internal secretions on the part of certain cells, chemically identical in all organs and tissues and of constant chemical constitution.

A newer concept of the production of humoral antibodies, however, is that sponsored by Manwaring, who

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regards antibodies as being primary, secondary or even tertiary hybrid protein retention products formed by conjugation or other biochemical interaction between antigens and normal humoral or cellular proteins (colloids). It attempts to explain antibody production on a purely chemical basis in that antibodies are only chemically transformed antigens or specifically altered enzymes (enzymates) derived from the antigen.

If this is correct, diphtheria antitoxin, for example, is merely the toxin of the diphtheria bacillus chemically transformed in the body by conjugation or some kind of interaction with humoral or cellular proteins; that the agglutinin responsible for the Widal reaction in typhoid is merely a transformation of one of the several antigens contained in the typhoid bacillus; and so on.

The idea is not exactly a new one, as one of the original ideas regarding the source of diphtheria antitoxin was based on the assumption that it was transformed toxin but was abandoned by Buchner and Ehrlich when it was shown that the production of antitoxin was altogether out of proportion to the amount of toxin injected into horses or other of the lower animals. And I believe that this is still the main stumbling block to acceptance of the theory that antibodies are chemically transformed antigens, unless future investigations show that such antigens as the toxins, dead bacteria and other antigenic substances can undergo some kind of increase in the body after injection and thereby produce the large amount of matrix required for the production of antibody out of all proportion to the original amounts of antigen.

It is true that Buchner thought at one time that acquired immunity was due to the retention of microbic products or their derivatives. Ehrlich accepted this view but thought that they entered cells and not only produced the primary injury resulting in initial antibody production but also continued to reside in the cell for some time and even for the remainder of life and thereby continued to stimulate the cell into antibody production over long periods of time.

But it may be that microbic products may be retained in the body over long periods without apparent injury and undergo constant chemical transformation into antibodies; the survival of cowpox and other viruses during the long period of immunity suggests this possibility. But the production of extraordinarily large amounts of antibody from relatively small amounts of such substances as toxins, which apparently cannot undergo an increase in the body like a living organism or virus, is a real objection to acceptance of the theory of antibodies being chemically transformed antigens.

However, it is an extremely interesting theory deserving of investigation, and indeed a few observers already claim that they have succeeded in producing artificially in the test tube such antibodies as diphtheria antitoxin, plant and animal precipitins and agglutinins and bactericidal substances for the gonococcus, even though poor Dr. Arrowsmith failed to do so!

THE RÔLE OF HUMORAL ANTIBODIES TO IMMUNITY

That some of the humoral antibodies bear an important relationship to natural and acquired immunity cannot be questioned, especially in the case of the antitoxins and opsonins. Others, such as the agglutinins and precipitins, appear to be likewise vitally involved in the mechanism of lysis and phagocytosis. It is true, however, that the antitoxins appear to be of most importance in serum therapy and that opsonins constitute the chief type of antibody in antibacterial serums and immunity.

There is some more or less definite relationship betwen the neutralization of toxins in the test tube by antitoxins and the prophylactic and curative activity of the latter in the living animal. At least I do not know of any antitoxic serum entirely devoid of the power of neutralizing homologous toxin in vitro, although it is claimed that normal serum free of antitoxin may have some curative effects in diphtheria, probably by a mechanism of nonspecific protein therapy. Furthermore, there appears to be some relationship betwen the opsonic activity of a serum in the test tube and its curative power in the animal and especially by injection into the subthecal space in the treatment of meningitis.

But otherwise it would appear that antibody reactions in the test tube bear no essential relation to defensive antibodies or hormones in the prophylaxis and treatment of disease. As shown by Stillman and others, for example, an antipneumococcus serum may agglutinate the homologous pneumococcus in the test tube but fail to protect mice against the organism. Or it may fail to agglutinate the organism in the test tube and yet demonstrate a high protective power in the animal. As previously stated, it may be that new knowledge of antigens and "determinants" may open up newer and better methods for the immunization of animals with the production of more potent protective types of antibody so essential for the prophylaxis and treatment of disease entirely apart or independent of antibody action in the test tube. At least it would appear that antibody action in vitro is not a safe criterion of the possible prophylactic or curative activities of a serum in the living animal and bearing an analogy in this regard to the very limited value of bactericidal tests in the test tube by chemical agents in relation to chemotherapy.

Furthermore, it would appear that the complement-fixing antibody bears no relationship to resistance or immunity but is merely an index or measure of the degree of infection. In syphilis, for example, one commonly finds the largest amounts of Wassermann antibody in the progressive stages of the disease, whereas, if this antibody were protective or curative, the largest amounts should be found in the clinically inactive stages of apparent latency. And apparently the same is true of other complement-fixing antibodies as for the gonococcus, tubercle and typhoid bacillus.

At present it is simply impossible, at least for me, to define clearly the relationship, or lack of it, of allergic antibody to the processes of immunity. Since the cellular mechanism of allergy is now so well proved as to be practically removed from the category of theory, one is tempted to postulate that allergy is due to antibody attached to cells and that immunity is due to the same antibody free in the humors of the body. But this generalization is not permissible according to present day data. In hypersensitiveness to diphtheria toxin, for example, it is stated that a guinea-pig may have antitoxin in its blood and yet possess toxin hypersensitiveness, and it has been apparently impossible to correlate the phenomena of hypersensitiveness and immunity in tuberculosis. Allergic antibody may be in the nature of a precipitin, but about all that may be definitely stated of it at present is that it may or may not coexist in the blood with protective antibody.

THE RÔLE OF ANTIBODIES IN SERUM DIAGNOSIS

While test tube antigen-antibody reactions are of limited value and may even constitute a hazard in evaluating serums for the prophylaxis and treatment of disease, some of them possess a great deal of value in the diagnosis of disease.

In this connection it must be stated, however, that the term "antigen" is not well chosen, since the substance with which the antibody may react in the test tube may not be capable of producing antibody in the living animal. No better example of this can be given than the alcoholic extracts of normal tissues employed as "antigen" in the conduct of the complement fixation and precipitation tests for syphilis. Indeed, from the chemical standpoint, it would appear that protein-free lipoids may act as "antigens" or "haptenes" (Landsteiner) in the test tube and be entirely devoid of demonstrable antigenic activity in vivo.

On the other hand, however, some of these nonspecific test tube antigens may be capable of producing antibody. I refer to the lipoid-protein complexes from the tissues of the guinea-pig and many other substances capable of producing antisheep hemolysin when injected into rabbits and constituting what Forssman and others have designated as "heterophile" antigens and antibodies. Indeed, the discovery of these constitutes another and very perplexing paradox in immunity and an additional example of the complex chemistry of antigens in relation not only to test tube reactions but to antibody production as well.

Curiously, the very antibodies of apparently limited value in natural and acquired immunity are of most value in serum diagnosis. I refer especially to the agglutinins, precipitins, complement fixing and allergic antibodies. It is true that the methods employed for serum diagnosis usually contain sources of technical error and that the possibility of certain biologic errors may be present; but these are now fairly well understood, so that agglutination tests for example are of proved value in the diagnosis of typhoid, paratyphoid and undulant fevers as well as of tularemia, glanders and other bacterial diseases of man and the lower animals. In this connection I may also refer to other paradoxical situations with especial reference to the mysterious and unknown origin of the agglutinin for *B. proteus-vulgarus* (X 19) in typhus fever (Weil-Felix reaction) and the Hektoen phenomenon, which refers to the production of typhoid agglutinin in influenza, undulant fever or some other acute infections. These, too, appear to be nonspecific biologic reactions urgently requiring elucidation.

Furthermore, precipitins are of value in the detection of anaphylaxis as well as for the differentiation of blood, serums, bacterial and other proteins, while the precipitation and complement-fixation tests for syphilis constitute in all probability the most useful of all serodiagnostic methods.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GAY, AYCOCK, COCA AND KOLMER

Dr. M. B. Sulzberger, New York: As a dermatologist I have naturally had much occasion to occupy myself with drug eruptions; that is, allergic skin eruptions due to sensitization to drugs. The drugs which sensitize are usually very simple chemicals. That is, they are sometimes even elements such as arsenic and mercury, and are often well known chemical substances such as paraphenylenediamine and arsphenamine. Although these are not full antigens or functional antigens, they satisfy some of the requirements in the definition of an antigen. That is, the first contact with them, or a contact with them, if not the first, sensitizes and causes the cells to react differently on subsequent contact. This is one of the definitions of an antigen (partial antigen). Unfortunately, I have never been able to demonstrate antibodies satisfactorily to these simple partial antigens, or sensitizing bodies. It would be a great advantage if one could demonstrate serologic and immunologic substances reacting in a specific manner to these simple chemical compounds. If this were possible, the study of immunologic phenomena would be materially advanced, for one would not be dealing with complex substances of unknown chemical nature, and such questions as to whether an antibody is formed from antigen or uses antigen in its formation could perhaps be easily solved. That antibodies to these simple substances have not been demonstrated does not mean that it will be impossible to do so. I know Dr. Coca's work very well. I have followed it for a long time with great interest. He has ventured on a dermatologic field this afternoon, and I agree with him, in the main, that there are certain types of allergic skin eruptions which have a hereditary predisposition, that is, in which the susceptibility to sensitization is hereditary, and that these are frequently combined with asthma and hay fever and also often give positive skin reactions to intradermal testing or scratch testing. I do not think that these eruptions should be called eczemas. There is another dermatologic name for them—that is, generalized neurodermite or lichen simplex disseminatus. I think it would be confusing to call them eczemas and I fear that many allergists and even dermatologists use this term too loosely. Eczema is today practically synonymous with contact dermatitis. In this condition the patch tests must be employed. It is interesting to note that some cases of pollen contact dermatitis are caused by fat-soluble substances, if I understood correctly. There are, however, many examples of contact dermatitis in which this is not the case. There is contact dermatitis due to quinine, due to corrosive mercuric chloride, due to solution of formaldehyde, due to phenylhydrazine—and I could keep on with this list ad infinitum.

PLASTIC OPERATION TO RESTORE VOLUNTARY ANAL CONTROL *

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There are many conditions which, although not menacing to life or even to ordinary good health, are extremely distressing to the individual in the discomfort and disturbance of function and the general wretchedness which they cause. In this group of disorders perhaps none is more completely harassing than incontinence of anal control. Various conditions may result in loss of control of the sphincter ani muscle. Direct injury to the muscle itself from accident or operation, damage to its nerve supply anywhere along the course of the fibers from the cerebral cortex to the end-organs in the muscle, and certain congenital defects from which either the muscle or its nerve supply is defective are the principal types of lesions which result in incontinence of feces. For some of these conditions, efforts have been made in the past to repair the damaged muscle by suture or plastic operations of various sorts. Others have been frankly regarded as beyond help. The plastic operations on the muscle frequently have given unsatisfactory results. The field is one in which improvement in the methods at present in vogue should be widely welcomed.

In articles published about two years ago by Wreden [1] and by me,[2] there was described a new method of restitution of anal control, following damage or loss of the sphincter muscle. At that time Wreden reported one successful case and I also reported one successful as well as one unsuccessful case, and since then Ransohoff[3] has reported an additional success by his method. My purpose in this paper is to record seven further cases, again to call attention to this valuable principle of treatment in a most discouraging situation, and to introduce some further modifications of technic that seem to be improvements. The essential principle of Wreden's operation is to harness the two gluteus maximus muscles by slings of fascia that pass around the anal canal, in such a manner that, when the glutei contract, these fascial slings will be drawn taut. As the slings from the two sides interlock, this tightening closes the anal canal and gives the patient a voluntary control over the closure of the lower end of the bowel.

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Wreden, R. R.: Method of Reconstructing Voluntary Sphincter Ani, Arch. Surg. 18: 841 (March) 1929.

2. Stone, H. B.: Plastic Operation for Anal Incontinence, Arch. Surg. 18: 845 (March) 1929.

The case reports, condensed to essentials, are as follows:

Case 1.—Mrs. E. M., a white woman, aged 44, complained of diarrhea and incontinence of feces. This patient has a long surgical history of twelve operations, including among others removal of ruptured appendix, removal of gallbladder, cesarean section, hysterectomy, perineal repair and several rectal operations. Three years previous to her admission to the Church Home and Infirmary for the present illness, the sphincter muscle had been divided for an ulceration of the rectum. Since that time she had had no control over the bowels in spite of two or three attempts at a repair of the sphincter. Eighteen months ago she developed diarrhea with from twenty to forty stools daily. No parasites were found on repeated search and no ulceration was seen. The condition was diagnosed as mucous colitis.

On examination the patient was found to be highly nervous. There were multiple scars and a very annoying mucous colitis. The anal outlet was patulous and showed a good deal of scarring. On palpation no sphincter tone whatever could be felt, and when the patient was asked to contract the anal outlet voluntarily, no visible contraction took place.

Oct. 18, 1929, operation was done as described in a previous article, except that a piece of fascia from the patient's own thigh was used to form the strips. The wound became infected to a considerable extent and some of the fascia sloughed out. It finally healed, and the patient was discharged six weeks after operation. At this time the mucous colitis was greatly improved and there was distinct contracting power in the anal canal when the gluteus muscles were tightened. A report one year later showed some improvement over her previous condition, but her control was still far from perfect. This case can be classed, at best, merely as one of improvement.

Case 2.—L. de G., a white girl, aged 16, had a spina bifida with paralysis of many of the muscles in both legs below the knee, with pes equinocavus and with rectal and bladder incontinence. This situation had existed since birth and was clearly due to a developmental fault in the lower spine, with extensive nerve disturbance.

Operation was performed, Jan. 14, 1930, at the Church Home and Infirmary; the strips were of prepared fascia in this instance and not autogenous. The wound healed practically by first intention except for a slight serous drainage. The patient was discharged, January 28, and at the time of discharge the result of the operation was considered to be very good. She has been seen since that time and, as she has learned better to utilize the gluteus muscles, her improvement has continued. At the present time the patient herself considers the result to be practically perfect.

Case 3.—H. H., a white man, aged 63, was operated on at the Church Home and Infirmary in September, 1928, for a very extensive fistula in ano. In the course of this operation it was necessary to divide the sphincter muscle. The fistula healed, but following recovery from the operation there was considerable incontinence but no complete loss of anal control. This weakness of control was quite annoying, particularly as the patient had also a mucous colitis of some years' standing and was unable to retain mucous stools at times.

He was operated on, March 25, 1930, and the prepared fascia was used for the strips. The patient was discharged, April 7, the wound having healed practically by first intention, there being only a slight amount of serous drainage. He was greatly improved. He was seen again three months later and the result was very satisfactory but not quite perfect. The only difficulty that the patient has is that there is some slight seepage of moisture unless he is careful to keep the glutei tense at times. This occurs only when one of the mucous bowel movements is present in the rectum. He has no difficulty controlling the actual stool and no difficulty with gas.

Case 4.—Mrs. J. O., a white woman, aged 37, was admitted to the Union Memorial Hospital, March 16, 1930, with a diagnosis of ovarian cyst and uterine myomas, also relaxed sphincter ani. She was operated on, April 2, the uterus and the right adnexa being removed. Convalescence from this operation was satisfactory and on April 19 it was decided to attempt one of the plastic fascia strip operations for the anal incontinence. This incontinence followed forceps delivery in 1912, and she had an attempt made in 1913 to repair the damage by the usual plastic operation on the perineum. This was unsuccessful. A second unsuccessful attempt at sphincter repair was made in 1921. Her incontinence had continued without improvement and had recently become worse. The operation, April 19, was performed by Dr. J. Arthur Weinberg, at that time resident surgeon of the Union Memorial Hospital. Following the operation the wounds became slightly infected and drained for two or three weeks before finally closing up. There was also some sloughing of the distal end of the rectal mucosa, which was probably due to some strangulation by the bands of fascia. The patient was discharged from the hospital, May 11, entirely healed, and had good control of bowel movements but not complete control of gas. The sphincter at that time admitted the index finger. She was reexamined, October 24, at which time it was noted that the sphincter tone was good. The sphincter admitted the index finger. The wounds were entirely healed. The patient had complete control except when she became very nervous and excited. The bowels moved regularly, and there was no soiling whatever. The result was considered perfect.

Case 5.—C. B., a white man, aged 32, had been operated on in 1928 and again in 1929 for rectal fistula. Since that time he had been troubled with discharge and itching about the anus and was unable to control his bowel movements after taking laxative medicine. The patient was first given an alcohol injection for the pruritus but returned later complaining of incomplete control of the bowel. On rectal examination there was an inflamed area about the anus and mucoid discharge coming from the rectum. The rectal sphincter was relaxed and he apparently had very little control of it. Operation, March 4, 1930, at the Church Home and Infirmary was performed by Dr. Ervin B. Wallace, at that time resident surgeon at the Church Home. The material used for the strips was prepared fascia. The patient made an uneventful recovery with healing of his wounds by first intention. The discharge from the rectum was considerably lessened. Sphincter control improved so much that the patient could now hold an enema. He was discharged from the hospital in two weeks and was seen again in the middle of October, six months after his operation. He still had some pruritus in the skin about the anus, but the sphincter was working perfectly and Dr. Wallace reported an entirely satisfactory result. The patient in this instance was distinctly subnormal mentally, and it was felt that because of his lack of intelligence he did not utilize the gluteus muscles to the best possible advantage.

Through the courtesy of friends I am permitted to record two further cases:

Case 6 (patient operated on by Dr. G. Paul LaRoque of Richmond, Va., who has kindly furnished the following abstract).—A man, aged 60, who had undergone an operation for fistula in ano thirty-eight years before, complained of total incontinence except when obstinately constipated and, for the past fourteen months, of rectal prolapse. Examination showed prolapse 4 inches long and no palpable sphincter at any place. Oct. 4, 1930, an exaggerated Whitehead operation for prolapse was done. October 31, the operation as described by Stone[2] was performed, fascia lata strips from the patient's thigh being used. The wound healed without suppuration. The patient was last seen about four months after operation. He had control of his movements except when he took a purgative, and Dr. LaRoque estimated the result as about 90 per cent satisfactory.

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[3] Ransohoff, J. L.: Ann. Surg. **90**: 317 (Aug.) 1929.

CASE 7 (patient operated on by Dr. Lon Grove of Atlanta, Ga., who furnishes the following data).—A boy, aged 6½ years, presenting anal and bladder incontinence due to spina bifida, had undergone one previous attempt at surgical repair by another operator. Dec. 1, 1930, Dr. Grove employed the method as described in the previous publication by Stone,[2] using autogenous fascial strips from the thigh. The wound healed without infection. Dr. Grove reports that an examination about three and one-half months later showed the child greatly improved but control not quite perfect. If there is diarrhea, control is lost, and at times when the small patient forgets to use his new control there is soiling. As the patient is very young, Dr. Grove expects much more nearly perfect results later when he is older and can cooperate better.

To summarize these seven cases, together with the four others previously reported in the articles already referred to, there have been five very successful cases, four almost entirely successful cases, one case only slightly benefited and one complete failure. In the two unsatisfactory results, infection was much more pronounced than in any of the other cases and was felt to be without doubt the cause of failure. The desire to reduce the probability of infection, in a field where strict aseptic postoperative conditions are well-nigh impossible, has led to the modification of the operation in some details, and at present the following procedure is employed:

With the patient in the lithotomy position, after as careful cleansing of the field as possible, including cleansing enemas for two days previous to operation, two symmetrical incisions are made, one on each side, about 4 cm. lateral to the anal margin and slightly posterior to it. These incisions slant somewhat laterally toward their anterior ends, are about 2 cm. long, and are carried well into the subcutaneous fat. After the two incisions have been made, a closed long curved clamp (Kelly) is introduced through one incision and by blunt dissection is forced around through the subcutaneous tissues in front of the anus, and its tip is made to emerge into the other incision. The clamp is then opened and grasps the ends of two strips of fascia, 0.5 cm. wide and from 22 to 25 cm. long. This fascia may be either autogenous from the patient's fascia lata or prepared by the Koontz method. The clamp grasping the fascia strips is then withdrawn the way it was introduced. This threads both fascia strips in front of the anus. A second Kelly clamp now grasps the end of one of the strips, is passed again into one of the incisions and is forced to burrow its way subcutaneously to the other incision, this time behind the anal canal. As it emerges into the opposite wound, the strip of fascia clamped in its tip is seized and more of it is drawn through the wound. This strip now encircles the anus subcutaneously, entering at one incision and its opposite end emerging from the same incision. The clamp, which meanwhile has remained in its posterior tunnel, is opened, grasps the end of the second fascia strip and is pulled back the way it was pushed in. It brings back with it the end of the second strip of fascia, which now also encircles the anus subcutaneously but in the opposite direction to the first strip, each forming a loop with the free ends of the same strip protruding through the same incision. From one of the incisions blunt dissection is now carried outward and backward fairly deep in the fat until the mesial edge of the gluteus maximus is reached and identified. A bundle of fibers of this muscle about as thick as one's index finger is now surrounded by one end of the fascia strip protruding from the skin incision. This may be done most easily by carrying a linen thread in an aneurysm needle around the muscle bundle and using the thread as a tractor, tied to the end of the fascia strip, to pull the strip around the muscle bundle. This end of the strip is now brought back into the incision and tied tightly to its own other end, thus forming a closed loop, one end of which encircles the anal canal and the other a bundle of gluteus muscle. Exactly the same steps are executed in the other incision with the two ends of the other fascia strip. The knotted fascia ends sink into the depths of the wounds, and the skin is closed as the operator may prefer. The two small incisions are sealed with some impervious dressing, and the bowels are kept tied up for from seven to ten days following the operation.

The anus is now encircled by two loops of fascia running off in opposite directions, tied under some tension about bundles of gluteus muscles. When the glutei are voluntarily contracted, they will pull the loops still tighter and give a mechanism for voluntary increase in closing pressure on the anal canal. As has been said, the principle of this operation is that of Wreden. The method differs from his and from my own first method by reducing the number of incisions from four to two and moving these two farther from the anal orifice. The mechanics of the operation remain the same, but the chance of escaping wound infection is improved. Four of the cases herewith reported, all done by this newer modification, have been very satisfactory. If infection can be avoided, the percentage of good results should be very high.

There are several points of interest in regard to this operation that deserve a further word. The operation depends on the utilization of the gluteus muscles. Hence it is obvious that if these muscles are for any reason not functioning this operation cannot be expected to succeed. Also until the patient learns to use the glutei properly the full benefit is not obtained. Hence education of the patient in this regard is important. He must be trained to contract the buttocks when necessary. It follows that patients who cannot be taught to do this, because of lack of interest or of intelligence, do not improve as much as others. Case 5 of this series was an instance in point. The anatomic and surgical result was excellent, but the patient did not always remember to use his new power of anal control. Because of this necessity for education, the successful cases do not show as much immediate improvement as will ensue ultimately.

SUMMARY

Seven further cases of anal plastic operations are reported and reviewed with four previously recorded cases, with nine good and two poor results. A further modification of the method to secure better protection against infection is described. This operation offers a new principle of attack on a very difficult problem and deserves further trial.

18 West Franklin Street.

ANAL FISTULECTOMY *

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It is my purpose to present information based on the records of consecutive cases in which fistulectomy has been performed, and to outline a few principles of value on the surgical treatment of anal fistula. The types of fistulas, the course of the tracts, the preoperative preparation of the patient and the sedatives and anesthesia employed have been described previously[1] and will not be considered here. This study tends to establish the truth of information concerning anal fistulas instead of bringing out any new facts.

It is customary at the Mayo Clinic to perform proctoscopic and sigmoidoscopic examination in all cases in which evidence is disclosed, either in the history or by general examination, of disordered function of the anus, rectum or colon. Approximately 9 per cent of the patients who register at the clinic complain of anal, rectal and colonic disorders. A little more than 5 per cent of these are found to have anal fistulas. Five hundred and eighty-nine (58.9 per cent) of the 1,000 patients in this series were males, and 411 (41.1 per cent) were females. Only one patient was less than 10 years of age, and six were in the second decade of life. Forty-eight and two-tenths per cent were between the ages of 20 and 40, 77.4 per cent between the ages of 20 and 50, and 93.9 per cent between the twentieth and sixtieth years of life.

ETIOLOGY

It is necessary constantly to be aware that tuberculosis may cause anal fistula. It should also be borne in mind that actinomycosis might cause such a lesion, and that malignant growths may develop in anal fistulas. However, it does not seem necessary to regard as of any significance the possibility of involvement of the ischiorectal tissues by abscess or fistula caused by unusual organisms. Although tuberculosis formerly was considered a prominent factor in the production of fistula in ano, it is well known now that it rarely causes this disorder, and a primary tuberculous anal fistula is rarely seen. When studying this series, I tried to discover all possible indications that the patient might have or might have had tuberculosis. I included those patients who gave histories of tuberculosis and some without any other evidence than that of a report of a healed tuberculous lesion in the roentgenogram of the lungs. After eliminating the cases in which there were old healed types of tuberculosis, those in which there were positive histories only, and other cases in which tuberculosis was improbable, I feel that there was a probable causal relationship of tuberculosis to the fistula in only fifty-four cases. I can be sure of such a relationship in only twenty-two cases in which it was possible to demonstrate tuberculosis on examination of tissue, and in five cases in which there was active tuberculosis and in which examinations of tissue gave negative results.

ORIGIN

One of the chief reasons for failure to cure anal fistulas is misconception as to the point of origin of the disease. Lockhart-Mummery,[2] for example, began his paragraph on the causes of fistula in ano as follows: "The primary cause in all cases is an abscess in the tissues surrounding the rectum." It is surprising how many well informed surgeons have the same idea. It is true that ischiorectal abscess is an important part of the process that develops into fistula, but it is by no means the primary cause. The idea that the abscess is the beginning of the disease is probably due to the fact that it is at that time that symptoms are most troublesome, and it is then that the patient finds it necessary to seek aid. Previous to that time he has usually been unaware of any irregularity, although he might have noticed soreness, a sense of fulness, or tenderness about the anus and lower part of the rectum. It seldom happens, therefore, that the surgeon has an opportunity to consider those conditions which are responsible for the actual origin of the fistula until after the abscess has appeared, and many times after it has actually ruptured.

The development of an anal fistula may be divided into four stages, and the abscess does not appear until the third stage. The first stage is that of involvement of the anal crypts. Practically all anal fistulas originate as infection in the crypts of Morgagni. These little pockets are surrounded by lymphoid tissue and are formed by the juncture of the skin with the mucous membrane. The former overlaps the latter in a serrated margin known as the pectinate line (linea dentata) which is made up of the papillae of Morgagni. The crypts are susceptible to the same traumatic influences that attack other portions of the rectal outlet. Anything that produces a break in the tissues about the anal crypts, with subsequent admission of such organisms as Escherichia coli, Proteus vulgaris, staphylococci or streptococci, may result in development of infection of the crypts, and this is capable of developing into fistula. Often the trouble has been started by one or another of the following agencies: the strain and stretching due to the passage of a large, formed stool; the irritation of excessive diarrhea, or the trauma of a fall or of a foreign body, such as a fish bone or chicken bone. Thus the infected crypt becomes edematous, the papilla becomes hypertrophied and adherent over the crypt, and this nidus of infection is the beginning of the fistula.

The second stage is that of burrowing. The infection in the crypt begins to expand, and with its spread the process extends by burrowing out into the tissues adjacent to the anus. There are several courses which these tracts may pursue, but approximately 85 per cent of them pass either through the substance of the external sphincter or internal to it, between it and the internal sphincter. The tract ultimately finds its way into the ischiorectal tissues, where an abscess develops.

The third stage is that of the ischiorectal abscess. After the infection has passed through or between the muscles, the irritation produces a spastic condition of the anal muscles, and, except in those instances in which there is great destruction of muscle fiber, this spasm prevents a return flow of the pus toward the anus. Consequently, there is an accumulation external to the muscles, and the abscess develops in the loose tissues of the buttocks, the ischiorectal space or the pelvis.

In the fourth stage, the abscess increases in size, and, depending on its situation, it may rupture either externally, on the surface of the skin, or into one or more of the pelvic viscera, including the rectum, vagina, urethra, bladder or uterus. Sometimes the patient pre-

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* From the Section on Proctology, the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Buie, L. A.: The Origin and Treatment of Fistula-in-Ano, S. Clin. North America **7**: 1579-1600 (Dec.) 1927.

[2] Lockhart-Mummery, J. P.: Discussion on Fistula-in-Ano, Proc. Roy. Soc. Med. (Sect Surg, Sub.—Sect. Proct.) **22**: 33-43 (July) 1929.

sents a large swelling about the buttocks, due to such an abscess, and the delay in pointing and rupture necessitates incision. With the appearance of the secondary opening, regardless of its situation, the fistula is complete.

TREATMENT

As has been stated, it is rarely possible for one to give treatment in either of the first two stages of the disease, and it is only after the abscess has formed, and frequently after it has ruptured, that the patient will consult the surgeon. If rupture has not taken place, the abscess should be opened as soon as fluctuation is present. If induration, without fluctuation, persists unduly, hot applications should be used. A large cruciform incision should be made, and the points of the incision should be cut away in such a manner as to leave the external opening as large, if possible, as the cavity of the abscess itself. All cutting or, in the case of fistula, all dissection is done with the knife or scissors. Cauterization is not necessary in fistulectomy, and I have found that tuberculous fistulas heal just as readily as others, even though the cautery is not used. The abscess should not be explored digitally or the cavity irrigated with solutions in the acute period. Either of these maneuvers may result in destruction of the pyogenic wall of the abscess and in consequent systemic reaction which may prove very serious. It is much better to insert a small iodoform gauze drain to the innermost recesses of the abscess cavity and to do nothing more. The more acute the condition the less should be done in excess of wide incision and drainage. It is then advisable to delay fistulectomy, if possible, until the cavity of the abscess has been reduced in size and only a chronic, fibrous, fistulous tract remains. Once in a while, when there is a small abscess with a superficial tract and only a mild reaction in the surrounding tissues, it may be possible, after opening the abscess, to excise the fistulous connection down through the anal crypt and in that way to complete the cure in one operation. This is rarely advisable, however, and it is usually better to operate on the abscess first and on the fistula later.

The misconception in regard to the nature and situation of the internal opening is responsible for practically all the trouble which is experienced in curing the disease. In offering a solution of this problem, I feel that it should be understood that there is a primary and a secondary opening in every fistula. There may be more than one internal opening and there may be more than one external opening, but there is usually only one opening which is the source of the infection responsible for the fistula. This opening is almost always in one of the anal crypts, and usually, when there is another internal opening, it will be found above the pectinate line, somewhere in the wall of the rectum; the opening is secondary, owing to rupture of the abscess at that point.

The first problem is to find the internal opening or the source of the trouble. It is a mistake to seek for this point by immediately probing the sinus tract from the outside. Fistulas burrow through the tissues in a most irregular fashion, and the tracts are frequently angular and multiple. It is impossible, therefore, to probe fistulas in this manner with any degree of accuracy. Many surgeons make use of injection of colored solutions into the external sinus, but it seems to me that I have seen this method result unsatisfactorily more frequently than not. Methylene blue (methylthionine chloride U. S. P.) and bismuth paste are most frequently employed. I seldom use either. It is unnecessary to use colored solution in order to distinguish the tract from the remainder of the tissue, because the fistulous walls have a characteristic appearance which is easily distinguishable from that of normal tissue. If, on the other hand, the solution is being used in order to localize the internal opening, it is easier and more accurate to examine the anal crypts themselves.

One should not attempt to make more than a cursory examination of a fistula without anesthesia, and for this purpose a sacral anesthetic is preferable. The anus should not be dilated previous to the search for the internal opening. It is not wise to break up the tissues around the anal margin, because it may distort the fistulous tract leading from the crypt, or actually rupture it. This makes it difficult to trace the course of the tract from within outward, as it should be done. The anal crypts are examined, and it is possible to judge with a fair degree of accuracy where the internal openings will probably be by noting the position of the external sinus. In the series on which I am basing these remarks, 50 per cent of these openings were in a crypt or crypts situated in the median line of the posterior anal wall, 20.3 per cent of them were in a crypt in the median line of the anterior anal canal, and 29.7 per cent were found in the right or left walls. If the anal canal is divided into an anterior and a posterior half, approximately 70 per cent of fistulas will originate in a diseased crypt in the posterior half of the anus.

There is usually a definite sinus, which can be seen without difficulty. Frequently, pus can be seen coming from behind the pectinate line, and the internal opening is disclosed in that manner. Sometimes a tuft of granulation tissue can be seen within a crypt, and when a probe is inserted into it the sinus is found. On occasions, only a little inflammatory reaction with bleeding on slight trauma is apparent, and rarely all crypts appear normal.

In order to justify the theory that infected anal crypts are the source of anal fistulas, it must be contended that all anal fistulas have internal openings. How is it possible, then, to find crypts of normal appearance with an active fistula in ano? This apparent paradox can be explained. When the abscess has formed and ruptured, the release of pressure and the establishment of a point of discharge makes it theoretically possible for the tract extending from the anus to the abscess to become inactive and fibrous, and actual healing may sometimes result. In this way the crypt could heal, close and, in time, show no apparent evidence of disease. This I believe to be the explanation of the so-called incomplete external fistulas, of which surgeons have been unable to demonstrate an internal opening. Suffice it to say that it is practically always possible to discover the diseased crypt, and in those rare instances in which there does not seem to be any apparent involvement it is usually possible to connect the abscess with the probable point in the anal canal which was responsible for the origin of the disorder. In such instances one is justified in excising one or more of the crypts in the suspected anal quadrant in order to eliminate the dormant tracts. Occasionally, an abscess may occur in the perineum as a result of direct lymphoid involvement originating in an anterior anal crypt. In such instances, a definite tubular tract may not exist, and the infection might have been carried from the anus through the lymphoid chains which extend away from the anal margin. In cases of this kind, all tissues covering the abscesses should be cut away, and the tissues between the abscess and the superficial anal tissues should be excised down to and including the anterior anal crypt.

When the internal opening is found, an attempt should be made to get the probe into it, and the cutting should be from this point outward, including all the anal sphincters external to the tract and down through the wall of the fistula. Only when it is not possible to accomplish this should incision of the tract be begun externally, with a probe or grooved director in the external sinus. Then the tract should be followed carefully, and ultimately it should all be opened, down through the internal opening. When it is necessary to open the fistula by way of the external sinus, there is a simple rule which will assist in determining the course of the tract. Imagine a straight line drawn between the two tuberosities of the ischium. Such a line usually will pass across the anus near the anterior anal margin. If the external sinus is anterior to this line, the internal opening probably will be in the anterior half of the anus, and a straight, fistulous tract will connect the two openings. If the external sinus is posterior to this line, the internal opening is usually situated in the posterior median line of the anal canal, and the fistulous tract will pass from the external sinus and pursue a curved course posteriorly until it connects with the internal opening in the posterior wall of the anus. If there are many openings, and sinuses are found anterior and posterior to this line, the external sinuses are usually connected by fistulous tracts, and the rule for the posterior opening applies. All fistulous tracts should be opened throughout and all overhanging edges thoroughly cut away. The tracts should be excised unless they extend up into the pelvis or so deeply around the rectum that excision cannot be accomplished without sacrificing too much tissue. When the tracts cannot be excised, they may be mutilated with a curet or sharp instrument in such a way that they may heal with a solid scar. As a matter of fact, if there should be a sinus extending up into the pelvis, it will heal even if left alone, provided the main tract to the source of infection is opened and completely uncovered. When this tract is completely uncovered or excised, the infective discharges from the rectum pass outside and no longer accumulate in the tunneled fistula. Therefore the source of supply of the infected material which kept the pelvic sinus active is cut off; hence the sinus heals.

All fistulous tunnels should be converted into open ditches. If the sinus is connected with an opening higher in the rectum, where an abscess has ruptured, it will be necessary to cut through the rectal wall, along the entire course of the sinus, and leave the wound open.

If there are superficial tracts extending out into the buttocks and the tracts can be excised, it is preferable to suture the distal limbs of these tracts. Suturing, however, should not be carried so close to the anus that there will be pocketing due to overhanging edges, which will admit the discharges from the rectum under the skin of that part of the wound which has been closed. Proper consideration of this feature will save much time in the healing of extensive anal fistulas with many branching sinuses. Complete suturing of the wound through the anal canal seldom produces a satisfactory result, and although an instance occasionally is found in which a wound can be sutured following excision of a small, chronic, fibrous tract, as a rule it is hardly worth while to attempt this means of hastening healing. Operating on fistulas in stages may be used as a matter of expedience, but it is not a necessity. There are hidden tracts which cannot be found at the time of the first operation, and further operative procedures are sometimes necessary. This, however, is rare.

POSTOPERATIVE CARE AND RESULTS OF OPERATION

I now come to the most important consideration, which has to do with muscular control and the function of the anus following fistulectomy. The gauze (usually iodoform) which is placed in the cavity of a wound should not be allowed to remain in position too long. If a wound is packed with iodoform gauze and allowed to remain untouched for a week or ten days, the walls of the wound become organized into a fibrous membrane. Under such circumstances, a cavernous scar results. It then makes little difference how capable the anal sphincters may be; they cannot produce closure of the anal outlet by exerting their pull on the margins of this membranous scar. The gauze, therefore, should be removed early, when the walls of the wound are still raw, so that when they are healing they will come together to form a solid block of scar tissue throughout their entire extent. Then, with healing of the wound at the margin of the anus, there is formed a block, instead of a membrane of scar tissue, and the severed anal muscle fibers grow to it. The pull of these muscles on this block of scar tissue will then close the outlet of the rectum just as efficiently as if the muscle fibers themselves were uninterrupted. I usually succeed in removing all the gauze from the largest wounds within four to five days following the operation. The gauze is out of small wounds within seventy-two hours. In my series, only six patients complained of incontinence, and in all these instances the lack of control was manifested only when the content of the bowel was liquid. Not one of the entire group had incontinence of soft or of solid stools.

Of the 1,000 cases, more than one operation was necessary in 61. In all these, the secondary operation was performed while the patient was under observation at the clinic and before he had left our care. Frequently, only slight operation was necessary, but at other times much more had to be done. Whenever anesthesia was necessary for performance of the operation, it was listed as a secondary operation. One patient came in with multiple abscesses following injection treatment of hemorrhoids, and it was necessary to perform six operations on the abscesses and fistulas before cure was obtained. However, after single operations or after multiple operations when necessary, all patients were ultimately cured, and recurrences have not been reported. Of all the patients, 46.8 per cent had been operated on once previous to admission to the clinic, 14.3 per cent twice, 4.1 per cent three times, 0.8 per cent four times, 0.7 per cent five times, 0.4 per cent six times, 0.4 per cent seven times, 0.1 per cent eight times, 0.2 per cent twelve times, and 0.1 per cent fifteen times.

The length of time necessary for a patient to remain under observation would naturally be expected to vary within wide limits. In some instances, the disease was so extensive and so many operations were necessary that patients were forced to remain under observation for a very long time. The longest period over which I cared for a patient was three months and nineteen days. The average time spent in the hospital was 12.7 days, and the average total time spent under my care was 25.8 days.

The reports from which these statistics have been recorded were not accepted as being of value if the patient had been operated on less than three months previously. In 73.5 per cent of the cases, the record was studied six months or longer after the operation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STONE AND BUIE

Dr. Lon Grove, Atlanta, Ga.: I think any operative procedure done for this condition, having such wide range of applicability and practically without mortality, deserves the commendation of this association. Nine satisfactory results out of eleven trials, approximately 82 per cent, is certainly better than has been obtained with other technics. The only difficulty is the ability to do the operation without infection, and Dr. Stone has shown that this is possible in the majority of cases. It is rather tedious and time consuming but can be done by the average surgeon. In certain cases with marked relaxation of the anus, I would suggest a preliminary colostomy, followed by prolonged cleansing of the rectum and anus before the plastic operation is attempted. This should reduce the incidence of infection. Dr. Buie said that 9 per cent of patients at the Mayo Clinic have proctoscopic examinations. If he meant to say this, I think the percentage too low. In recent years emphasis has been laid on the necessity of a routine proctoscopic examination. One sees too often patients who have been told that they have bleeding hemorrhoids, who when properly examined are found to have painful fistulas, polypi, or even inoperable malignant tumors. I agree that tuberculosis as a cause of fistula in ano is extremely rare. It is rarely seen even in the Negro, who is notoriously prone to develop tuberculosis. I am surprised that he has seen only one case in a child, because in the Henrietta Eggleston Memorial Hospital, where all children admitted are under 12 years of age, fistula in ano has not been a rare condition. Three cases were seen there last year. I can't emphasize too much what he has said about the two-stage operation. The radical operation should never be done at the time of drainage of the abscess. The sphincters are frequently extensively undermined, and if the fistula operation is done at the time of the primary drainage, one will certainly be embarrassed by postoperative incontinence, due to a retraction of the muscles. I still feel the necessity of packing these wounds but certainly agree with Dr. Buie that the packing should be light, preferably with petrolatum gauze, which should not be left longer than two days.

Dr. Walter A. Fansler, Minneapolis: The operation which Dr. Stone describes has been tried by me in one case. In this particular patient, because of infection of the wound, the operation was not a success. I am convinced, however, from the observation of this patient that the principle of the operation is right and I shall attempt to do it again when I have a case in which I think it is indicated. Dr. Stone didn't say—and I am sure that he doesn't believe—that this operation is a routine operation for the repair of an incontinent anus. It is only reserved for those cases in which a more simple operation will not suffice. I think it is especially indicated in those cases in which there is some congenital defect, or in some nerve injury, due to disease or to operation or accident. If operation for fistula in ano is done properly, one should almost never be called on to perform this particular operation as a secondary procedure. The case in which I operated did follow an operation for fistula. The incision had been made so deeply that the man almost had a total incontinence. Concerning Dr. Buie's paper, I know that among general surgeons, and I think the profession in general, surgical treatment of a rectal fistula is considered to be a minor procedure. In spite of this feeling, I know that, in the thousand cases which Dr. Buie reported, 51 per cent of the patients had previously been reported on one or more times. One patient was operated on fifteen times for the fistula without obtaining a cure. That corresponds to my own experience. If that percentage of persons with fistulas are not cured by the first operation there is something wrong with the way fistula surgery is being done. I am sure that the failure in these cases is due to the fact that there is a lack of conviction on the part of the operator as to just what is the cause of rectal fistulas. I think if all would realize that most rectal fistulas originate as an infection in a crypt of Morgagni and for that reason have an internal opening, then the fistulas will be cured.

Dr. Curtice Rosser, Dallas, Texas: While it must be true that abscesses in the tissues adjacent to the anorectum are caused by an infection within the rectum with only the occasional hematogenic perirectal abscess as an exception, I believe that lymphatics act as carriers from within the anorectum in the majority of cases. The continued variance of opinion concerning the percentage incidence of tuberculosis is well illustrated by a comparison of the extremely low figures given by the author, which I believe to represent the true situation, and Mr. Ernest Miles's statement published only last month that abscesses of tuberculous origin represent about 14 per cent of the total number. It is possible that the continued feeling that the tubercle bacillus plays so important a part in the production of fistula arises from the tendency on the part of the profession to class every incompletely operated on and consequently unhealed fistula as tuberculous. Definite stress should be laid on the necessity for graded procedures in the operative treatment of all save simple fistulas not presenting active infection. Severance of the external sphincter muscle, an entirely safe procedure in the absence of excessive pyogenic tissue infiltration or complexity of the tract, may be a perilous step in the presence of these two factors, and postponement of muscle division until after the adjacent tissues are splinted by the healed scar of the first operative wound is often imperative.

Dr. Frank C. Yeomans, New York: Most of the cases of incontinence that I have had have been the result of improper division of the sphincter muscles. Some of them have obtained good, others fair results from a plastic repair of the sphincters. I know of two cases that had good results from the procedure described by Dr. Stone, which are not included in his statistics. With regard to the injection of fistulas, I think it is highly important to inject the fistulas which cannot be diagnosed offhand. In recurrent fistulas it is important to inject for diagnosis. One should plan out and know the nature of the fistula before instituting treatment. If methylthionine chloride or other staining fluid, when injected, does not come through the internal opening, or if the fistula is complicated, it should be injected with a thin paste of bismuth or barium and stereoscopic roentgenograms taken. It is folly to rush in and attempt to make the correct diagnosis and plan the procedure at the last moment on the operating table. One point in the operative technic that would frequently prevent recurrence, as Dr. Rosser has said, is an operation in stages. That is, one should first cut up to the sphincter, then pass a seton from the wound through the internal opening and bring it out to the anus, tying it loosely. When the wound is healed up to the sphincter, the sphincter may be divided under a local anesthetic and the chance of incontinence is indeed slight.

Dr. Edward G. Martin, Detroit: In my service at Detroit Receiving Hospital it is unusual when dealing with fistula not to complete the operative procedure in one stage. I am opposed to suturing *contaminated* tracts except under unusual circumstances, believing that healing by granulation under visual and digital control affords the surest method of permanent cure, even though excision has been thorough. Occasionally when the tract is long and superficial with the incision carried away from the anus for a part of the distance, then with an inch or so of skin intervening, the incision is carried on to the end of the tract. The area beneath the intervening skin is thoroughly curetted or excised; healing takes place promptly underneath this curetted area with free drainage into the remaining portion of the tract either way. Too wide a gap is thus avoided, and practically there are two granulating areas remaining. The same idea may be accomplished by a suture or two *midway* in a tract. As has been stated, the internal opening is easily discovered; I use a hooked probe. In simple fistula, excision of the tracts can well be accomplished without the injection of tracing material, since infected tissue in the tract distinctly differentiates itself from normal tissue. I am convinced, however, that properly prepared bismuth paste is superior to any other tracer. Ten per cent bismuth subnitrate in petrolatum, with sufficient liquid petrolatum added to afford easy injection without heating, will frequently disclose small hidden tracts when a simple stain will not do so. Pressure around the extent of a presumed completed operation may bring a drop of bismuth paste into view when an obscure tract is present which otherwise may be overlooked; this accounts for the so-called recurrence in many instances. Frequent digital exploration of the tracts postoperatively, will avoid so-called bridging and permit the even filling of the open areas by granulation. It is unusual, in my practice, to use secondary packing.

Dr. Harvey B. Stone, Baltimore: I agree with Drs. Grove and Fansler that the element of infection is the principal source of failure in the plastic operation. With regard to Dr. Grove's suggestion in cases in which one expects unusual difficulty from that source—for instance, in two of my cases with mucous colitis beforehand—I think it would be good judgment to do a preliminary colostomy to protect the wound additionally from infection. I also agree with Dr. Fansler that this operation was never intended to be the first resort in all cases in which there has been some damage to the sphincter muscle. In a great number of birth injuries, as every one knows, there is usually a large percentage of satisfactory results by a simple plastic operation, which is much easier to perform than this and generally gives adequate results. However, the point about this operation that is of particular value, I think, is that provided the gluteus muscles are functioning it may be employed with a good prospect of great improvement, even though the sphincter muscle is entirely destroyed, or even though it is lacking in innervation from some congenital matter. It gives one a resource in those cases which, lacking some such thing as this, it would be perfectly hopeless to attack by any sphincter or plastic outlet operation. There are one or two points I should like to emphasize. In the first place, since this operation depends on the use of the gluteus muscles as a voluntary constricting agent, education of the patient after the operation plays a large part in the extent of success obtained; and for a good while afterward, for some months, the patient should be followed and directed in keeping the glutei contracted and learning to use the gluteus muscles when there is an impulse for passage of a stool or gas. Then, since the gluteus is a voluntary muscle, this is not an automatic control and if the patient is not trained to use the muscle consciously he will not get automatic retention of rectal contents, such as he has with a normal sphincter muscle.

Dr. Louis A. Buie, Rochester, Minn.: I have previously given my opinion with regard to the injection of a solution into the external sinus of an anal fistula, to aid in following the ramifications of the tract. I have not found it necessary to make the injection to determine the presence or absence of the internal opening because the internal opening is never absent. The characteristic appearance of the walls of the fistula is as easy to distinguish from normal tissue as when the walls are painted with some colored solution. Hence the fistula can easily be traced. Unless the anal sphincters are completely relaxed the solution cannot be forced through to the internal opening, and, furthermore, much more satisfactory methods have been described for locating the source of infection. In dealing with ischiorectal abscesses it is not usually advisable to attempt the curative operation in one stage. This would necessitate attacking the internal opening when incising the abscess. If the abscess is not very large, if the tract connecting it with the source of infection is not deep or complex, and if the patient is not very sick, it may be done. Ordinarily, however, the abscess should be opened with a cruciform incision, after which the points of the cross are cut away so as to leave an external opening as large as the most spacious part of the abscess cavity, if this is possible. Sufficient time should be allowed to permit fibrosis of the walls of the fistula and subsidence of the acute process, before the fistula is excised. A digital rectal examination should be performed as a routine in connection with all general examinations. It is not necessary to subject all patients to proctoscopic examination. The clinician should be relied on to determine the necessity of further investigation. If a patient complains of any departure from normal bowel function or if the clinician's digital examination reveals anything suspicious, an examination with the proctoscope is indicated. Recently only 9 per cent of patients registering at the Mayo Clinic have been examined proctoscopically. Clinicians, in the clinic, however, prove a highly satisfactory safeguard.

THE DIFFERENTIATION OF PERIPHERAL ARTERIAL SPASM AND OCCLUSION IN AMBULATORY PATIENTS *

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Careful clinical examination yields most of the information needed in the study of vascular diseases of the extremities. The appearance of the limb in the horizontal, the elevated and the dependent positions, the return of color after temporary local compression and after elevation (including the angle of circulatory sufficiency), the comparative warmth of the parts, and palpation for arterial pulsations suffice to demonstrate circulatory impairment and to indicate roughly its degree. These accepted methods of physical examination fail, however, to show the cause of this deficiency: whether it is dependent on a mechanical plugging of the vessels or on vascular spasm. It has long been common knowledge that certain rare vascular disturbances are dependent on an arterial spasm. The spastic element in these interesting but infrequent syndromes, such as true Raynaud's disease, can usually be suspected from the history of paroxysmal seizures related to cold and separated by intervals of complete freedom. Only recently, however, has the importance of vasoconstriction in causing the circulatory deficiency in many instances of the common vascular diseases of the extremities been realized. And the presence of arterial spasm in them is frequently made manifest neither by the history nor by the most careful examination. A test that differentiates occlusion and spasm and that measures each of these elements when both are present has become an essential requirement in the study of peripheral vascular diseases.

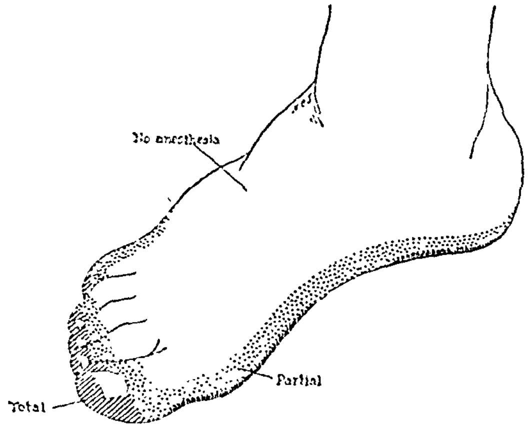

Fig. 1.—Area of anesthesia from blocking the posterior tibial nerve. The inhibition of sweating covers almost the same field. After the procaine solution has been injected, anesthesia and hyperthermia appear first sometimes in the field of distribution of the medial plantar, the lateral plantar or the calcaneal branch. If the needle point has been in the proper compartment, however, all three of the branches are anesthetized within fifteen to twenty minutes.

The first method of clinical importance for separating these elements was Brown's[1] vasomotor index obtained by typhoid vaccine administration. Owing to the disagreeable features of this procedure, its inconvenience and danger, we[2] developed a method for measuring the amount of vasoconstriction, depending on the increased circulation rate to the foot following spinal anesthesia. (White[3] and Brill and Lawrence[4] independently demonstrated that spinal anesthesia caused an increase in surface temperatures of the feet.) Subsequently the effect of this known paralysis of vasomotor fibers on normal and pathologic vessels was used as a basis of comparison in our other studies. General anesthesia was found to give the same complete obliteration of vasoconstriction,[5] though the mechanism of accomplishing this is less obvious. Consequently the peripheral thermal effect of general anesthesia was used as a diagnostic measure in vascular diseases involving the upper extremity and frequently instead of spinal anesthesia in the lower extremities. The distinction of spasm and occlusion obtained in these ways became so essential to us in the clinical study of peripheral vascular diseases that a further simplification seemed highly desirable, so that the test could be carried out on ambulatory patients without any significant inconvenience.

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* Read before the American Society for Clinical Investigation, Atlantic City, N. J., May 4, 1931.

* From the Department of Surgery, the University of Rochester School of Medicine and Dentistry.

[1] Brown, G. E.: The Treatment of Peripheral Vascular Disturbances of the Extremities, J. A. M. A. 87: 379 (Aug. 7) 1926.

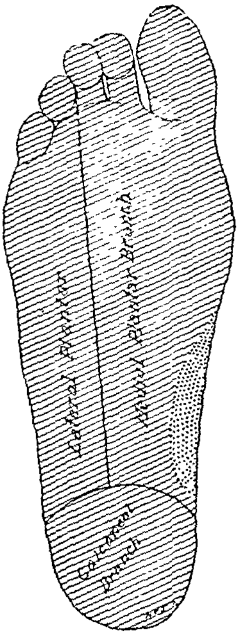

Fig. 2.—Plantar view of figure 1.

Since the clinical experiments of Weir Mitchell[6] and Waller,[7] it has been known that the paralysis of a peripheral nerve trunk by cold is associated with a hyperthermia in the anesthetic zone. Braun[8] and Wiedhopf[9] emphasized the similar phenomenon after nerve block with procaine hydrochloride. Lewis[10] advised the utilization of the latter procedure as a qualitative test in selecting cases of Raynaud's disease that would be benefited by sympathectomy. White,[3] on the anesthetization of the sciatic nerve for pain, reported an increase in the surface temperature comparable to that seen after spinal anesthesia. It was obvious, therefore, that the blocking of peripheral nerves would cause considerable vasodilatation. It was necessary to prove how completely normal vasoconstriction and pathologic arteriospasm would be overcome before this simple method of regional anesthesia could be utilized in a quantitative test for differentiating spasm and occlusion.

The commonest vascular lesions in the extremities involve chiefly the feet; the most marked spasm and the most severe circulatory disturbance usually manifest themselves first in the toes. The posterior tibial nerve, whose trunk becomes easily accessible just below the internal malleolus, furnishes the cutaneous innervation of the sole of the foot and the plantar surface of the toes (figs. 1 and 2). It is ideal for providing the data desired concerning the results of nerve block.

In order to establish the response of normal vessels to this procedure, the posterior tibial nerve was anesthetized with procaine in seventeen medical students. Satisfactory anesthesia was obtained in all cases. About ten minutes after the procaine had been injected the surface temperatures began to rise in the area of cutaneous distribution of the nerve. In fact, a subjective feeling of warmth in the foot is often perceived by the individual before sensory anesthesia is evident. The surface temperatures in the anesthetic field rose progressively at varying rates to a maximum point. (Figure 3 is a typical example.) But a similar height was attained by all; the maximum temperature on the great toe averaged 31.2 C., in all cases coming within 1 degree of this figure. All these determinations were made under standard conditions in a constant temperature room at approximately 20 C. Thus, in the groups of individuals with normal blood vessels, the lower limit of the temperature increase is about 1 degree less after nerve block than after spinal or general anesthesia. (All readings were corrected for a room temperature of 20 C.) In order to make this correlation more exact, the two methods were compared in the same patient (fig. 4). The left posterior tibial nerve was blocked with procaine. After the maximum response to this procedure had been obtained, the patient was given a nitrous oxide-oxygen anesthesia. Following this the skin temperature of the toes reached a slightly higher level than that after the nerve block, but the difference was only 0.7 degree C. By comparing the results of these methods for releasing vasoconstriction, it is seen that the increase in the local circulation is nearly as great after nerve block although the innervation of the main arterial trunks is intact. The hyperthermia caused by anesthetization of the posterior tibial nerve is satisfactory for use as a quantitative method for differentiating the circulatory deficiency of vasoconstrictor spasm from that of occlusion. The lower limit of the normal vasodilatation level by this method is 30.5 C. (room temperature, 20 C.).

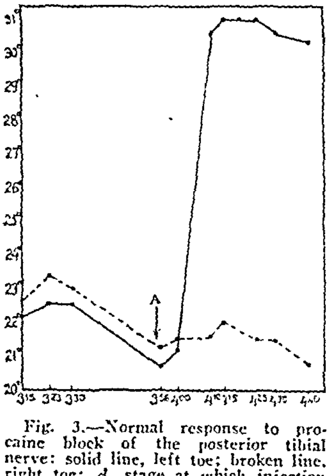

Fig. 3.—Normal response to procaine block of the posterior tibial nerve: solid line, left toe; broken line, right toe; *A*, stage at which injection was made into the left posterior tibial nerve.

TECHNIC OF THE TEST

It is ascertained by the accepted methods of clinical examination that a circulatory deficiency exists in the lower extremity. The patient is placed at rest on a bed or table with the feet and legs to the knees exposed, in a quiet room in which the temperature (at the level of the patient) is as near as possible to 20 C. (The range permitted is from 18 to 23 C.) The temperatures on the toes and soles are taken at five minute intervals with an instrument which accurately measures the true skin temperature.[11] After the level of the surface temperature has been established (the surfaces are usually exposed at least twenty to thirty minutes), the posterior tibial nerve is blocked just below the internal malleolus, by the injection of from 8 to 10 cc. of 1 per cent procaine solution about it (fig. 5). The nerve can usually be felt quite readily just behind the lower part of the external malleolus. It is followed forward as far as it can be easily palpated, usually to a point about 2 cm. directly beneath the posterior border of the malleolus, and the injection is made at this point in order to avoid injury to the vessels. The nerve is immobilized by hooking the finger under it. The point of the needle must be under the deep fascia in the same compartment with the nerve. It is not necessary or particularly desirable to inject the procaine into the nerve itself.

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[2] Morton, J. J., and Scott, W. J. M.: The Measurement of Sympathetic Vasoconstrictor Activity in the Lower Extremities, J. Clin. Investigation **9**: 235 (Oct.) 1930.

[3] White, J. C.: Diagnostic Blocking of Sympathetic Nerves to Extremities with Procaine, J. A. M. A. **94**: 1382 (May 3) 1930.

[4] Brill, S., and Lawrence, L. B.: Changes in Temperature of the Lower Extremities Following the Induction of Spinal Anesthesia, Proc. Soc. Exper. Biol. & Med. **27**: 728 (May) 1930.

[5] Scott, W. J. M., and Morton, J. J.: Obliteration of Vasoconstrictor Gradient in the Extremities Under Nitrous Oxide-Oxygen, Ether and Tribrom-Ethyl Alcohol Anesthesias, Proc. Soc. Exper. Biol. & Med. **27**: 945 (June) 1930.

[6] Mitchell, S. W.: Cases of Lesions of Peripheral Nerve-Trunks with Commentaries, Am. J. M. Sc. **85**: 17 (July) 1883.

[7] Waller, quoted by Mitchell (footnote 6).

[8] Braun, H.: Experimentelle Untersuchungen und Erfahrungen über Leitungsanaesthesie, Arch. f. klin. Chir. **71**: 179, 1903.

[9] Wiedhopf, Oskar: Experimentelle Untersuchungen über die Wirkung der Periarteriellen Sympathectomie und der Nervenvereisung auf die Gefässe der Extremitaten, Beitr. z. klin. Chir. **130**: 399, 1923.

[10] Lewis, T.: Experiments Relating to the Peripheral Mechanism Involved in Spasmodic Arrest of the Circulation in the Fingers: A Variety of Raynaud's Disease, Heart **15**: 7 (Aug.) 1929.

If the injection is properly made, loss of tactile sensation in the area of distribution begins within fifteen minutes. In order that this test shall be valid, complete anesthesia to touch must be obtained in the area investigated. (This is best tested by the light scratching of a pointed instrument such as a pin. Very light touch from cotton may not be appreciated on the sole of the foot, while a heavy pressure may be recognized even in a completely anesthetized area from the nerve fibers of deep sensation. The type of stimulation used must be proved satisfactory before the nerve is blocked.) The surface temperatures are recorded at intervals (every five minutes) until the maximum is attained; this occurs usually from fifteen to thirty minutes after the induction of a satisfactory anesthesia. The height of the surface temperature in the anesthetic area is then corrected for the room temperature; 0.3 degree is added to or subtracted from the reading for each degree by which the room temperature exceeds or falls below 20 C.[12] This corrected maximum is then compared to the normal vasodilatation level. If the surface temperature of the toe has gone up to equal or exceed 30.5 C., vasoconstrictor spasm is the cause of the local circulatory deficiency. If there is no increase in the temperature following the nerve block, vasoconstriction plays no rôle in the vascular disease. And if there is a definite increase in the surface temperature, which fails, however, to reach the normal vasodilatation level, the condition belongs in the mixed group and vasoconstriction is an element but not the only element in causing the circulatory deficiency.

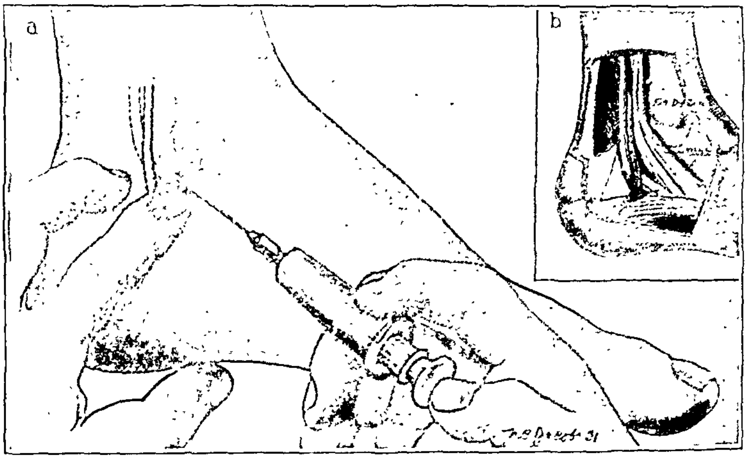

Fig. 5.—Block of the posterior tibial nerve. The nerve is immobilized with the finger. The injection is made as far anteriorly as the nerve can be palpated (*a*); the point of injection will therefore be after the nerve has crossed under the vessels (*b*). If the posterior tibial artery is pulsating, it can usually be felt just back of the index finger as the latter immobilizes the nerve. The needle may touch the nerve *but is not* inserted into it. However, the solution must be deposited beneath the deep fascia in the same compartment as the nerve.

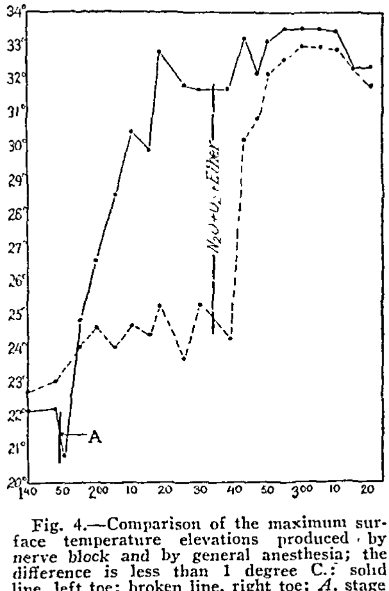

Fig. 4.—Comparison of the maximum surface temperature elevations produced by nerve block and by general anesthesia; the difference is less than 1 degree C.: solid line, left toe; broken line, right toe; *A*, stage at which injection was made into the left posterior tibial nerve.

APPLICATION TO PERIPHERAL VASCULAR DISEASES

The way in which this method assists in the examination of the common vascular diseases of the extremities is illustrated in the following two cases, which appeared clinically to be similar in their nature:

Case 1.—*History*.—C. W., a man, had a mild case of diabetes, with marked arteriosclerosis. No pulsations were palpable in the posterior tibial or dorsalis pedis arteries on either side, but pulsations were felt in both popliteal arteries. There was an impending gangrene of the right great toe, with pain in this area. There was slight rubor in the left foot on standing, but the patient had no symptoms on this side. The clinical diagnosis was endarteritis obliterans in the lower portion of both legs with impending gangrene in the right leg. It had previously been shown by this test that the arterial disease on the right was entirely occlusive. The left side was tested to determine the character of its arterial lesion.

The blocking of the left posterior tibial nerve was followed by no increase in the surface temperature on the left great toe (fig. 6) or sole (not shown on chart). There was an increase on the heel to a maximum of 28.4 C.

Interpretation.—No vasoconstriction in the toe, some vasoconstriction evident in the heel, but not to the normal vasodilatation level.

Application to Diagnosis.—The vascular lesion affecting the left foot is primarily occlusive. Removal of sympathetic innervation would not assist the circulation to the anterior part of the foot.

Case 2.—*History*.—F. S., a man, aged 65, had had mild diabetes for six years. For a year he had suffered pain in the left foot with dependent rubor. Recently there had been pain also in the right foot. Pulsation was absent or very slight in the left posterior tibial and dorsalis pedis arteries, and fairly good in the right posterior tibial artery. The pulsation in both popliteal arteries was good. The clinical diagnosis was diabetic endarteritis obliterans.

Injection of the left posterior tibial nerve was followed by a sharp increase in the surface temperature of the left toe to a maximum of 31 C. (fig. 7). This is to the normal vasodilatation level. As the arterial lesion in this case was thought to be purely occlusive, the result of the test was a surprise. It was checked with general anesthesia, under which the temperature of the left toe rose to 31.5 and that of the right to 31 C.

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[11] All surface temperature determinations were made with the dermotherm, which has already been described (Scott, W. J. M.: An Improved Electrothermal Instrument for Measuring Surface Temperatures, J. A. M. A. **94:** 1987 [June 21] 1930).

[12] This correction for room temperature is explained in the following two articles:
Scott, W. J. M., and Morton, J. J.: Sympathetic Activity in Certain Diseases, Especially Those of the Peripheral Circulation, Arch. Int. Med., to be published.
Morton, J. J., and Scott, W. J. M.: Methods of Estimating the Degree of Sympathetic Vasoconstriction in Peripheral Vascular Diseases, New England M. J. **204:** 995 (May 7) 1931.

Interpretation.—Attainment of normal vasodilatation level after procaine block. (The result was checked by paralyzing peripheral vasoconstriction with general anesthesia.)

Application to Diagnosis.—Circulatory impairment is entirely dependent on vasoconstrictor spasm. Sympathetic denervation will greatly improve this patient.

In another place we[12] have discussed the importance of the differentiation between arterial spasm and occlusion, both for the understanding of the disease process and also in the clinical management of these patients. Therapeutic measures in the group dependent chiefly on vasoconstrictor spasm should be along radically different lines from those in the group dependent exclusively on occlusion. And in the mixed group the relative participation of the two elements is significant.

This method of differentiating the effects of vasoconstriction from those of occlusion is applicable also to the upper extremity. The ulnar nerve at the elbow or the median nerve just above the wrist is blocked with procaine and the temperature changes in the anesthetized area are followed. If the hand is cool initially, the hyperthermia induced is so striking that the difference in temperature between the two sides of the ring finger has easily been appreciated by palpation during ulnar anesthesia. From our experience the normal vasodilatation level is approximately the same as for the feet. But we have not carried out anesthesia in the hands in a sufficient number of normal persons to establish this figure with mathematical exactness.

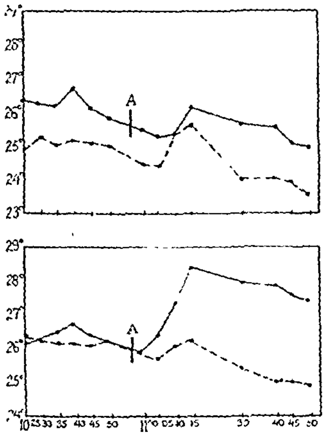

Fig. 6 (case 1).—In a case of arteriosclerotic endarteritis obliterans, after blocking of the left posterior tibial nerve, there was no increase in the temperature of the toe, while there was some increase in the temperature of the heel. The circulatory deficiency in the toes was entirely dependent on occlusion. In the upper chart the solid line indicates the left toe; the broken line, the right. In the lower chart the solid line indicates the left heel; the broken line, the right. *A* in each chart indicates the point of injection into the left posterior tibial nerve.

Raynaud's disease offers a special and complicated problem. It can easily be verified that the attacks of arterial spasm can be induced even when vasoconstrictor impulses are entirely eliminated from the area involved, as Lewis and his co-workers[10] maintained. However, in the mild and moderately severe cases, at ordinary room temperature, the spasms appear to be initiated chiefly by sympathetic impulses and, conversely, the attacks can be greatly diminished in severity and frequency in the patient's usual environment by the permanent abolishment of such impulses to the involved extremities. Consequently, in Raynaud's disease the reaction to the test we have outlined varies somewhat. Often the blocking of the appropriate nerves causes a relaxation of the spasm in the anesthetic area, though usually this result differs from that in other forms of arterial spasm. The vascular dilatation in Raynaud's disease is slowly progressive and some degree of impairment in the local circulation can be seen for a considerable time after the establishment of complete anesthesia. The severe cases of Raynaud's disease offer exceptions to the foregoing test for distinguishing arterial spasm and occlusion. Although dependent on arterial spasm, they may show no increase in the surface temperature, or one which falls far short of the normal vasodilatation level. A study of this type of complicated vascular response is being reported separately.[13] This exception in Raynoud's disease offers no difficulty in the application of the test to the common vascular diseases, as its diagnosis is easily made from the character of the attacks, when they are severe enough to fail to respond to nerve block.

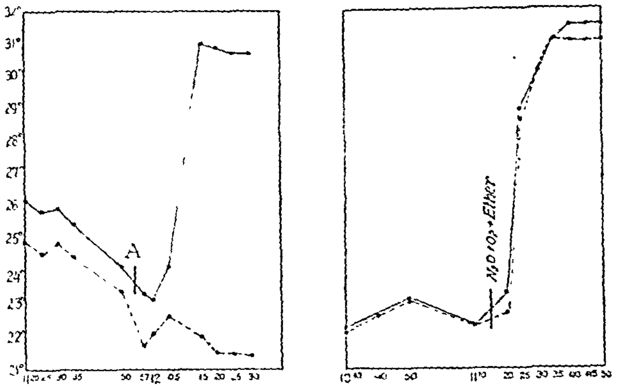

Fig. 7 (case 2).—Vasoconstrictor arteriospasm. Clinically, the case was diagnosed as diabetic endarteritis obliterans. After blocking of the left posterior tibial nerve, the temperature on the toe rose to the normal vasodilatation level. The same type of response occurred after general anesthesia and to a point only 0.5 degree C. higher. The solid line indicates the left toe; the broken line, the right. *A* indicates the point of injection into the left posterior tibial nerve.

CONCLUSIONS

1. A simple method is outlined to differentiate vasoconstrictor spasm from occlusion in the common vascular diseases of the extremities.

2. This test can be carried out easily in ambulatory patients. It has eliminated the inconvenience and danger of previous methods and does not require hospitalization.

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[13] Morton, J. J., and Scott, W. J. M.: Some Angiospastic Syndromes in the Extremities, Tr. Am. Surg. A., to be published.

Naming the Vitamins.—Funk's term vitamine was criticized because it implies that these substances are amines, which is not proven in any case and certainly not probable in all, and because the choice of "vita" as a designation was thought by some to carry an exaggerated implication of unique responsibility for life and vitality whereas other substances such as tryptophane are no less essential. But if "vita" seems to claim too much, the designation "accessory" suggested by Hopkins is certainly too modest, since an accessory substance would ordinarily be judged to be dispensable whereas the indispensability of these substances is one of their most marked characteristics. In order to avoid these difficulties McCollum suggests that, until such time as chemical names can properly be assigned to them, these substances be known by alphabetical designations qualified only by such statement of their solubilities as may seem helpful. In his earlier rations of supposedly purified foodstuffs McCollum unwittingly furnished water-soluble vitamin in the lactose fed. Hence, he had at first concluded that the fat-soluble substance of butter, egg-fat, etc., was the only unidentified substance essential to normal nutrition. Thus this became, in his alphabetical terminology, "fat-soluble A," and the water-soluble substance which he next recognized as essential was designated as "water-soluble B." A little later the antiscorbutic substance was included in the alphabetical terminology as "water-soluble C."—Sherman and Smith: The Vitamins, New York, Chemical Catalog Company, Inc., 1931.

PATHOLOGIC CONDITIONS SECONDARY TO ACHLORHYDRIA [*]

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Achlorhydria, or the absence of free hydrochloric acid from the gastric secretions, is not an uncommon finding, as it obtains in at least 10 per cent of patients with indications of digestive trouble presenting themselves for medical treatment. In 1924, I [1] reported a series of 2,730 cases studied by means of the fractional test meal, with 10 per cent showing complete absence of free hydrochloric acid. Prior to that time, Hurst [2] had reported a series of 225 cases studied by means of the fractional meal, with 10.5 per cent showing complete achlorhydria. My associate, Dr. James R. Jeffrey,[3] reports a series of 6,224 cases with 716, or 11.4 per cent, showing absence of free hydrochloric acid. Higher percentages have been reported but usually after the Ewald test meal, in which a higher percentage of patients exhibit achlorhydria than with the fractional meal. Since Dr. Jeffrey and I found a rather large number of our cases exhibiting a delayed acidity—at least 18 per cent exhibited achlorhydria at the end of one hour—we concluded that the Ewald test meal did not give us sufficient reliable information and discarded it. We are now using the fractional test meal as devised by Rehfuss, with more satisfactory results.

Practically all the information relative to acid values up to this time has been obtained from patients presenting themselves for examination, so that it is difficult for us to determine the incidence of achlorhydria among normal individuals. Such information as we have would indicate that it is not uncommon to find an achlorhydria among apparently healthy individuals. Bennett and Ryle [4] report a series of 100 healthy college students, in 4 per cent of whom achlorhydria was found. Wright [5] reports a series of 250 children between the ages of 6 and 15 years, with achlorhydria present in 1.6 per cent. Faber [6] reports a true achlorhydria as being present in 50 per cent of people above 50 years of age. He further reports that Dedichen found it in 66 per cent of apparently healthy people from 67 to 92 years of age and that Meulengracht, in Copenhagen, found it in 75 per cent of people past 70 years of age. Conner,[7] in reporting according to age with various diseases, shows an increase among young people between the ages of 10 and 19, a decided drop between the ages of 20 and 29, and a gradual increase after 30 years, reaching 67 per cent in individuals of 70 years or more. We find, therefore, that achlorhydria is relatively rare in early life but gradually increases until, according to our present information, it is present in more than 50 per cent of the aged.

ETIOLOGY

The etiology of achlorhydria, according to such authorities as Faber [6] and Hurst,[8] is usually a gastritis of the chronic type. While the introduction of the infection responsible for the gastritis may be with the food, it is usually blood borne and secondary to disease in some other part of the body. The fundamental conception of an achlorhydria secondary to a gastritis might warrant the belief that all the secretory glands had been completely destroyed, but it is in all probability a gradual process and occurs after a considerable period of time. According to Faber, complete atrophy of the glands of the mucosa rarely obtains, the achlorhydria obtaining long before such serious injury results. He also calls attention to the fact that achlorhydria as indicating a complete absence of ferments as well as free hydrochloric acid rarely obtains, even in cases of definitely proved primary anemia. Achlorhydria has been considered by some to be a congenital condition, but this is strongly combated by Faber, who says:

> Neither deficient etiology nor lack of symptoms warrants us in assuming the existence of a congenital constitutional achylia. All the cases are explained most readily and naturally by taking exogenous gastritis as the cause. This does not exclude the possibility that some individuals are more disposed to the disease than others, but as yet there is no material to warrant the conclusion that it is hereditary or familial as, for instance, polydactylism, Huntingdon's chorea, and the like. It is only natural that such a common disease as achylia should be found in several members of the same family, but this is no proof of heredity. At most it is a sign of increased susceptibility.

Conner [7] made a careful study to determine the possibility of living conditions being a factor in the production of achlorhydria and the possibility of there being a congenital tendency. His conclusions are that, while achlorhydria cannot be proved a hereditary condition, there are indications of a familial tendency toward its development.

Summary of One Hundred Cases of Achylia Gastrica

Men, 28; Women, 72
Average Age, 52

Diagnosis	No. of Cases
Fatigue, chronic	36
Glossitis	9
Gastritis, chronic	7
Anemia, secondary	16
Anemia, primary	7
Chronic cholecystitis	13
Combined lateral sclerosis	17
Bowel Condition	**No. of Cases**
Normal	14
Constipation	75
Diarrhea	8
Alternate constipation and diarrhea	3

It has been recognized that achlorhydria was a precursor of certain pathologic states, such as primary anemia, subacute combined degeneration of the cord, secondary anemia, and gastrogenous diarrhea, and that it was present in a considerable percentage of cases of chronic arthritis and biliary tract disease. In many cases of achlorhydria there are no definite indications of digestive trouble and it might easily be overlooked, while in others the symptoms are so classic that the diagnosis could almost be made without gastric analysis. The symptoms may strongly resemble those seen in duodenal ulcer, as to the incidence of pain, relief after the ingestion of alkalis, and the like, but definite information can be obtained only by gastric analysis, which in our opinion should be done early in all cases exhibiting indications of gastro-intestinal symptoms or symptoms of chronic illness. In reviewing a series of 100 consecutive cases in our work exhibiting achlorhydria, we find that the diagnoses presented in the accompanying table have been made.

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[*] From the Battle Creek Sanitarium.

[*] Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Eggleston, E. L.: Gastric Secretory Disturbances, J. A. M. A. **83**: 260 (July 26) 1924.
2. Hurst, A. F.: Achlorhydria: Its Relation to Pernicious Anemia and Other Diseases, Lancet **1**: 111 (Jan. 20) 1923.
3. Jeffrey, J. R.: Personal communication to the author.
4. Bennett, T. I., and Ryle, J. A.: Studies in Gastric Secretion: Study of Normal Gastric Function, Guy's Hosp. Rep. **71**: 286 (July) 1931.
5. Wright, C. B.: Gastric Secretion, Gastro-Intestinal Motility and Position of Stomach, Arch. Int. Med. **33**: 435 (April) 1924.
6. Faber, K.: Chronic Gastritis: Its Relation to Achylia and Ulcer, Lancet **2**: 901 (Oct. 29) 1927.
7. Conner, H. M.: Hereditary Aspect of Achlorhydria in Pernicious Anemia, J. A. M. A. **94**: 606 (March 1) 1930.
8. Hurst, A. F.: Precursors of Carcinoma of the Stomach, Lancet **2**: 1023 (Nov. 16) 1929.

This group of subjects consisted of patients presenting themselves for examination in a routine way, usually complaining of digestive symptoms of such a character as to warrant a gastric analysis; they could not be considered as normally healthy individuals. There was an entire absence of ferments in only thirty-one of these cases. Histamine as a gastric stimulant was used in a part of the analyses. We found that with a total acidity of below 16, with an entire absence of free hydrochloric acid, there is little if any response to histamine. We are therefore of the opinion that for practical purposes it is not necessary to resort to its use as a routine measure.

ACHLORHYDRIA IN ANEMIA

For some years it has been known that achlorhydria always precedes primary or Addison's pernicious anemia. It was difficult to determine just how long this condition had persisted prior to the anemia, as in the great majority of cases a gastric analysis had not been made until the trouble was far advanced. In some of our cases the achlorhydria had persisted for at least ten years prior to the diagnosis of pernicious anemia. Just why should primary anemia develop in an individual with an achlorhydria? This problem has been discussed by the medical profession for a great many years, and various theories have been advanced. The hypothesis of an intestinal toxemia has had many adherents, but proof of a specific toxemia of a hemolyzing character, which might have a depressing effect on the bone marrow function, has been lacking. Not until the epoch-making work of Castle, Townsend and Heath [9] was the problem satisfactorily elucidated, and the profession owes them a great debt for their painstaking efforts. They proved quite conclusively that in cases of achlorhydria or achylia gastrica a primary anemia develops secondary to an imperfect digestion of the proteins. They conclude:

> The experiments are then uniform in support of our original conception of the nature of the disease. Addison's pernicious anemia is due to a virtual deficiency brought about even in the presence of a diet adequate for the normal individual by a defective gastric digestion of protein as a result of achylia gastrica.

They further prove that this lack of protein digestion is not due to the absence of free hydrochloric acid, nor is it due to the absence of pepsin or to the absence of both hydrochloric acid and pepsin, as many cases exhibiting an achlorhydria with the absence of pepsin fail to exhibit any anemia whatever. Their conclusions are that it is due to the lack of an intrinsic substance secreted by the normal gastric mucous membrane, which interacts with some extrinsic factor in beef muscle to form a hematopoietic substance capable, in the presence of a normal diet, of promptly relieving the anemia of a patient suffering from primary anemia. In their opinion this is an organic thermolabile substance, possibly an enzyme, as it is destroyed by heat. Sturgis and Isaacs,[10] in isolating a hematopoietic substance from the stomach of the hog, confirm the conclusions of Castle and his associates that this intrinsic substance is definitely a product of the normal secretory glands of the stomach.

Just why pernicious anemia does not develop in all cases exhibiting an achlorhydria or achylia gastrica has not as yet been definitely determined. Castle and his associates point out that even in the absence of free hydrochloric acid and pepsin the hypothetic substance may remain for a long time and that many cases of achylia may be potential cases of pernicious anemia later on. While the absence of both hydrochloric acid and pepsin often indicates the absence of this hypothetic substance, it is certainly not necessarily the case. It would nevertheless appear that the factor which destroys the secretion of hydrochloric acid and pepsin may also be responsible for the loss of this essential substance. Cases closely resembling primary anemia have been reported after a subtotal gastrectomy, which would bear out this hypothesis of Castle and his associates. Frequent references to secondary anemia in cases exhibiting achlorhydria have been made. Borgbjaerg and Lottrup [11] report that, in a series of cases exhibiting achlorhydria, 50 per cent showed some degree of anemia, with the color index above 1 in 22 per cent and megalocytosis in 15 per cent. In all probability the cases of achlorhydria exhibiting secondary anemia may be cases in which the hypothetic substance has not been completely obliterated, possibly early cases of primary anemia, and for this reason they should be carefully watched.

ACHLORHYDRIA IN RELATION TO MALIGNANT CONDITIONS OF THE STOMACH

Since it is estimated that the stomach is the primary site of malignant conditions in from 30 to 40 per cent of all cases, and since the specific etiology of malignancy is unknown, the chief concern lies in the premalignant conditions that possibly favor the development of cancer. Achlorhydria is frequently observed in malignant conditions. Can it in any way be considered a forerunner of cancer? At one time the presence of free acid in the gastric contents was considered as definite evidence against such a diagnosis. Friedenwald [12] reports that achlorhydria obtained in 90 per cent of 733 cases. Hurst [8] reports achlorhydria in 65 per cent of seventy-four cases at Guy's Hospital and New Lodge Clinic. Hartman [13] reported the presence of an achlorhydria in 50 per cent of a series of cases.

It is now known that a malignant condition of the stomach may obtain with a normal acidity or even with a hyperchlorhydria, but it has not been considered that an achlorhydria was a specific precursor of malignancy. Just what relation does the achlorhydria have to the malignant process? Is the latter the cause of the achlorhydria by a destruction of the secretory glands, or does the achlorhydria precede it? It is now recognized that the malignant process is rarely so extensive as to warrant the conclusion that it might produce an achlorhydria by its destruction of glandular tissue. Frequently, achlorhydria is found when the growth has invaded but a slight portion of the stomach wall. It is now considered probable that a chronic gastritis may be an etiologic factor in the production of malignancy and that the achlorhydria may be secondary to the gastritis. Hurst [6] is of the opinion that, in about 75 per cent of cases, carcinoma is secondary to chronic atrophic gastritis. His reasoning appears sound when he contends that a healthy gastric mucosa is rarely if ever attacked by a malignant process. It would seem that the malignant process instead of being a direct result of the achlorhydria might be secondary to the pathologic process that caused a destruction of the secretory glands of the stomach, but one should be on the lookout for the possible later development of a malignant condition in cases exhibiting an achlorhydria.

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[9] Castle, W. B.; Townsend, W. C., and Heath, C. W.: Observations on Etiologic Relationship of Achylia Gastrica to Pernicious Anemia, Am. J. M. Sc. **180:** 305 (Sept.) 1930.

[10] Sturgis, C. C., and Isaacs, Raphael: Desiccated Stomach in Treatment of Pernicious Anemia, J. A. M. A. **93:** 747 (Sept. 7) 1929.

[11] Borgbjaerg, A., and Lottrup, M. C.: Blutuntersuchungen bei der Achylie, Acta med. Scandinav. **72:** 539, 1929.

[12] Friedenwald, J.: A Clinical Study of One Thousand Cases of Cancer of the Stomach, Am. J. M. Sc. **148:** 660, 1914.

[13] Hartman, H. R.: The Prognostic Value of Gastric Acidity in Cases of Resectable Carcinoma, J. A. M. A. **83:** 1976 (Dec. 20) 1924.

ACHLORHYDRIA AS A CAUSE OF DIARRHEA

Diarrhea as a symptom in cases of achlorhydria occurs far less frequently than constipation, but when present it may be very disturbing to the patient and require painstaking work on the part of the physician to rule out the most specific causes, such as parasites, tuberculosis and chronic ulcerative colitis. The term gastrogenous diarrhea has been applied in cases in which no specific cause for the diarrhea can be found other than the achlorhydria. These patients make marked improvement after the administration of hydrochloric acid, the diarrhea promptly subsiding without change in diet and without the necessity of resorting to astringents. Wilkinson and Oliver,[14] commenting on gastrogenous diarrhea, describe an achlorhydric syndrome the clinical picture of which is somewhat as follows: chronic diarrhea, usually persisting over a period of years, colicky pains, flatulence, mild secondary anemia and recurring attacks of glossitis. The patient is seldom incapacitated but complains of lack of physical vigor and is often neurotic. This is a true picture in the majority of cases exhibiting a gastrogenous diarrhea, but in them are also recognized some of the early symptoms of primary anemia. It is frequently noted that cases of achlorhydria under roentgen observation may exhibit decided hypermotility, the barium leaving the stomach in so short a time as one hour and reaching the rectum in from two and one-half to three hours. Under such conditions the digestion must be very imperfect. In the presence of a highly putrefactive intestinal flora, it is not impossible that irritating substances are formed which might tend to produce a diarrhea as a result of the colon irritation or colitis, and, while the comfort of the patient demands the relief of this symptom, one should not fail to recognize that this is only one of the results of a chronic gastritis and achlorhydria.

ACHLORHYDRIA IN RELATION TO GALLBLADDER DISEASE

Is there some relation between gastric secretions and biliary tract disease? Cheney[15] reports that achlorhydria is present in 25 per cent of cases of chronic cholecystitis and that with those cases in which the acidity is definitely below the normal the ratio rises to 50 per cent. He suggests that when chronic gastritis is found on examination for dyspeptic symptoms, with no definite cause for the symptoms, disease of the gallbladder should be suspected. Moynihan,[16] in discussing cholelithiasis says:

> We did not derive much help in diagnosis from an examination of the stomach contents by the Rehfuss method. Out of 77 cases we found complete achlorhydria in 17, hypochlorhydria in 3, a low normal in 14, a normal in 18, a high normal in 8, and hyperchlorhydria in 17. . . . The rate of emptying the stomach in these cases was: rapid in 27; normal in 34; delayed in 16.

In our series of 100 cases there were 13 with a diagnosis of chronic cholecystitis, the dye test being positive. We are of the opinon that, in chronic cases of gallbladder disease with stone formation, achlorhydria or hypochlorhydria is a much more frequent finding than hyperchlorhydria. The theory that the infection causing a chronic gastritis may be the etiologic factor in pathologic changes in the gallbladder has been advanced, and it is possible that the imperfect gastric digestion of proteins might favor a biliary stasis and in this way be a causative factor in the stone formation.

ACHLORHYDRIA AS AN ETIOLOGIC FACTOR IN CASES OF ARTHRITIS

We have not found that achlorhydria is a particularly constant observation in cases of arthritis. It may occur as a symptom in all chronic illnesses, but we have not felt that it was a definite factor in the causation of arthritis. Nevertheless, Faber[17] reported in 1913 that he found achylia gastrica in fifteen of sixty-five patients suffering from chronic polyarthritis. Borries[18] reported that, by the Ewald method, achylia was present in 30 per cent of ninety-four cases, while Lottrup[19] reported a series of cases of chronic progressive primary polyarthritis in which 44 per cent of the patients had achlorhydria or achylia gastrica, while 58 per cent had a simple anemia. My impression is that these observers used the Ewald method, which would give too high an incidence of achlorhydria.

CHRONIC FATIGUE IN CASES EXHIBITING ACHLORHYDRIA

In our 100 consecutive cases, chronic fatigue was given as a prominent symptom in 36 per cent. There might be a question as to whether the fatigue was the cause or the result of the achlorhydria. We do not attempt to answer this, but in some cases a neurocirculatory asthenia was the outstanding symptom, and we would be inclined to add it to the achlorhydric syndrome previously mentioned. The high incidence of this symptom is an indication that the individual suffering from an achlorhydria is a potential invalid. Fatigue is one of the early and persistent symptoms in primary anemia and should be considered for this reason if for no other, but it is also an early symptom in cases exhibiting malignant conditions. Therefore, cases exhibiting both achlorhydria and chronic fatigue should be considered as possible early cases of either primary anemia or malignancy.

CONCLUSIONS

Since a chronic gastritis is probably responsible for the greater number of cases of achlorhydria, it would seem that every effort possible should be made to relieve the trouble before the secretory glands of the stomach are destroyed. If this can be accomplished, the individual may be protected from some of the pathologic conditions discussed, and certainly an improved gastric digestion and a better condition of the health, generally, will result.

Much may be done in the way of relieving the cause of the gastritis by destroying foci of infection: diseased tonsils, chronic sinus infection, and apical disease of the teeth. The diseased appendix has also been mentioned as a possible cause of chronic gastritis. Since gastritis, both acute and chronic, may result from acute infections, such as scarlet fever and measles in children, and influenza, typhoid or other acute infections in adults, greater care must be exercised, in the management of the infection, to avoid such complications if possible.

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[14] Wilkinson, J. F., and Oliver, T. H.: Some Clinical Conditions Associated with Achlorhydria, Lancet **1**: 66 (Jan. 10) 1931.

[15] Cheney, W. F.: Diseases of the Stomach and Intestines, in Oxford Monographs on Diagnosis and Treatment, New York, Oxford University Press **2**: 103, 1928.

[16] Moynihan, B.: Cholelithiasis, Brit. M. J. **1**: 393 (Feb. 28) 1925.

[17] Faber, K.: Berl. klin. Wchnschr. **50**: 958, 1913.

[18] Borries, G.: Deutsches Arch. f. klin. Med. **120**: 216, 1910.

[19] Lottrup, M. C.: Chronic Arthritis, Gastric Achylia and Anemia, Ztschr. f. d. ges. phys. Therap. **38**: 10 (Dec. 4) 1929.

Careful regulation of diet to avoid irritation, attention to the vitamin content of the food, and the restriction of alcohol, tobacco and irritating drugs may be of decided value in restoring the inflamed mucous membrane to a normal state. Rapid eating and the use of too hot or too cold foods, especially in the young, may be a frequent cause of gastritis. The excessive use of sweets or soda fountain beverages is also a potent factor. Whereas the saloon was formerly supposed to be a great factor in destroying the digestive glands, it is not certain that the soda fountain of today may not be equally destructive.

There may be some difference of opinion as to the medicinal measures which are valuable in these cases. Probably dilute hydrochloric acid, either with or without the gastric ferments, has been the preparation of choice. If used with the idea that it will supply the hematopoietic substance secreted by the normal mucous membrane, it is probably of little if any value, but in many clinical cases exhibiting achlorhydria its value is apparent by the improvement in the patient's condition. This is particularly true in early cases of gastritis, in which it seems to be of great value in association with other measures in checking the pathologic process. Whether it is by activating the pepsin, or by providing a stimulus to the secretion of pancreatic juice as suggested *by Pavlov,*[20] *or by partially disinfecting* the upper gastro-intestinal tract may not have been definitely proved. According to Crohn:[21]

> Whether the customary, even insufficient, dosage of acid acts to produce a free acid medium during digestion or not, the empirical fact remains that the clinical symptoms show evident improvement. The gastric symptoms are alleviated and the diarrhea is often successfully held in check. The hurried gastric emptying is delayed, the pyloric reflex strengthened, and the resultant diarrhea is beneficially affected.

It is prescribed as a routine measure in all of our cases exhibiting a definite absence of free hydrochloric acid. We are of the opinion that it may be given in capsules, as now provided by some chemical firms, in preference to its use as a lemonade, which may have deleterious effects on the teeth. We find but little indication for the addition of pepsin to the hydrochloric acid, as it is completely absent in so few cases. It is of little value to attempt to increase the gastric secretions, as was formerly the vogue, by means of bitter substances—quinine, strychnine, gentian—and the practice of prescribing these drugs for direct effect on the gastric mucosa is practically obsolete.

The use of heat as a hydrotherapeutic measure, by means of fomentations, the electric pad or diathermy is of exceptional value in cases presenting epigastric pain after meals and in cases exhibiting a pyrosis or tendency to regurgitation of food.

Gastric lavage is a measure that has been largely discarded by the profession, but *in chronic gastritis* it might be used advantageously in selected cases. Hurst[8] advises its use with a solution of hydrogen peroxide, which he believes is of decided value in relieving the stomach of mucus. An inflamed mucous membrane may produce a large amount of mucus which, in cases of subacidity, neutralizes the small amount of acid secreted. After a lavage which frees the stomach of mucus, hydrochloric acid is present, although previously a diagnosis of achlorhydria may have been made.

While acute cases show marked improvement following rational therapeutic efforts, chronic cases do not respond so well, but we believe that much can be accomplished in the way of temporary relief and possible permanent improvement.

SUMMARY

1. Achlorhydria obtains in about 10 per cent of patients presenting themselves for examination in whom gastro-intestinal symptoms suggest gastric analysis.
2. Achlorhydria probably results from a chronic gastritis which in the majority of cases is of hematogenous origin. Alcoholic abuse and the excessive use of tobacco favor a chronic gastritis and should be prohibited in these cases. The excessive use of candy and soda fountain products is definitely to the disadvantage of the young.
3. In achlorhydria a complete absence of the enzymes is rarely found and we have practically discarded the use of the term achylia gastrica. For practical purposes, we do not recommend the use of histamine.
4. In cases of primary anemia, hydrochloric acid is always absent and the enzymes are greatly reduced. It has been suggested that the achlorhydria might be considered a precursor of this condition.
5. The epoch-making work of Castle and his associates appears to prove that in primary anemia there is a disturbed protein digestion which is due, not to the absence of hydrochloric acid or pepsin, but to a probable hypothetic enzyme, which is sometimes absent in cases of achlorhydria.
6. Achlorhydria is found in possibly 50 per cent or more of cases exhibiting gastric malignancy. This is *not necessarily a cause of the malignant condition but* is secondary to the atrophic gastritis, which by some is supposed to be an etiologic factor in malignant conditions.
7. Achlorhydria is also a frequent symptom in chronic diarrhea, biliary tract disease, chronic arthritis and some cases of secondary anemia.
8. If more consideration could be given to cases of achlorhydria in the early stages of the trouble, it is possible that the gastritis could be relieved, which might allow of a partial restoration of gastric function.

ABSTRACT OF DISCUSSION

Dr. Clark W. Heath, Boston: Pernicious anemia is only one of the many diseases often associated with achlorhydria. Even in pernicious anemia there may be rarely plenty of free acid *present and the gastric juice apparently normal. I studied* two such cases—a case of chronic sprue and a case of multiple intestinal anastomoses. Each patient had a typical pernicious anemia blood picture and responded subsequently in normal fashion to liver extract. But when the gastric juice was allowed to act on beef muscle and the product fed to two persons with pernicious anemia, there was no response of the blood, although when gastric juice from normal individuals was given instead the typical signs of remission occurred. In other words, the gastric juice in these two cases did not contain the essential factor, which is present in normal gastric juice. The gastric juice of four patients with a total anacidity, in three of whom there was an anemia of the chlorotic type such as was originally described by Faber and in one of whom there was no anemia, was tested in a similar manner. This gastric juice was just as effective as normal gastric juice in acting on beef muscle to produce remissions in pernicious anemia. Such patients as the last respond well to large doses of iron but respond little, if any, to liver or liver extract. I have seen pernicious anemia accompany cancer of the stomach. In ten cases of complete gastrectomy recorded in the literature in which the patients survived the operation longer than a year, three cases of pernicious anemia apparently developed. These facts add evidence to the belief that in pernicious anemia there is lacking in the gastric juice a factor which acts on certain substances in the diet to promote normal hematopoiesis. The absorption from the gastro-intestinal tract is another factor in the production of anemia. Keefer has shown the increased incidence of anemia when diarrhea is present. Two persons with pernicious anemia, one of whom did not respond to extract derived from 300 Gm. of liver given daily by mouth and the other to extract derived from 600 Gm. of liver, each responded well to a single intravenous dose of extract derived from only 100 Gm. of liver. As for the etiology of achlorhydria, I am inclined to the hereditary or familial theory in the majority of cases.

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[20] Pavlov, I. P.: The Work of the Digestive Glands, Philadelphia, J. B. Lippincott Company, 1910, p. 118.

[21] *Crohn, B. B.: Affections of the Stomach, Philadelphia,* W. B Saunders Company, 1927, p. 391.

Dr. B. B. Crohn, New York: I cannot quite agree with Dr. Eggleston in regarding achlorhydria as a "disease." I think it is a mistake to speak of achlorhydria as such when it is a more or less natural condition in 24 or 26 per cent of normal adults. *It leads to a misconstruction to speak of it as* a disease. It is a functional variation of the gastric secretion. It is probably well within the range of normality and gives rise to practically no symptoms. It has been blamed by neurologists as a cause of melancholia. Hysteria has been attributed to achlorhydria, and also glossitis. It seems that in almost every disease in which the etiology is obscure some one has discovered an incidence of achlorhydria and has thought that this must be the determining factor. Achlorhydria is just a normal physiologic fluctuation of the gastric secretion and in itself should never be interpreted as a disease. Achylia gastrica, however, is entirely different, leading definitely to certain pathologic changes, of which the one outstanding characteristic is primary pernicious anemia. The subject of chronic gastritis is receiving attention all over the world; it is a subject of which more will be heard in the near future. But to what extent chronic gastritis (as evidenced by definite pathologic changes) means anything is as yet an open question. I cannot conceive of small histologic changes such as occur with advancing age as being evidence of an actual disease process which leads to clinical symptoms. I am inclined to believe that the subject of chronic gastritis will be again much overdone. I was interested in Dr. Comfort's remarks about only 20 per cent of achlorhydria following the operation of subtotal gastrectomy. We now have at Mount Sinai Hospital a history of about 600 cases of partial gastrectomy running from ten to fifteen years. We have yet to see our first case of pernicious anemia, *in spite of the fact that all the cases of gastric ulcer* in which subtotal gastrectomy has been performed have resulted in achylia.

Dr. Henry A. Rafsky, New York: One must realize that the achlorhydria, as well as extreme degrees of hyperchlorhydria, are compatible with normal health. As important as it is to differentiate between so-called normal and abnormal achlorhydria, so much more important is it to differentiate between primary and secondary achlorhydria. Repeated examination of the gastric secretion, blood examination, and roentgen examination have to be performed before one can determine whether a clinical picture is due to persistent absence of hydrochloric acid, or whether the latter is part of a clinical picture due to a malignant condition or pernicious anemia. I wish to emphasize the fact that statistics vary as to the relationship of achlorhydria to advancing age. Dr. Vanzant has been mentioned. He has recently reported a large series of cases showing that the percentage of true achlorhydria increases as individuals near 60 years. Bell of London does not conform to this theory that advanced age is accompanied by a tendency to atrophy of the gastric tubules and diminished gastric secretion. He found hyperchlorhydria more pronounced after 40. Kruger and I, studying the gastric secretion *in a series of* seventy-five cases at the Home of the Daughters of Jacob, in old people, the youngest of whom was 70 and the oldest 91, found true achlorhydria in only 1 per cent of the cases. This is contrary to the usually accepted observation. We did our gastric analysis by the fractional method. These patients were as nearly normal as old people can be.

Dr. A. C. Ivy, Chicago: During the past seven and one-half years I have *gastrectomized* twenty-eight dogs which have survived the operation longer than one month. Of the twenty-eight, fourteen have survived from six months to six and one-half years. Of the fourteen, three have developed a spontaneous secondary anemia. I have made observations on four female gastrectomized dogs, some of which were pregnant once and others as many as four times. A secondary anemia developed with each pregnancy. I believe that that is a significant observation. This question has bothered me a great deal: Why doesn't anemia develop in all cases of achlorhydria or achylia? The following explanation has occurred to me as being reasonable: One may look on digestion as it occurs normally in the alimentary canal as 100 per cent, and one may state empirically that a factor of safety is present. Now, if the stomach is removed, all or considerable of the factor of safety may be removed. The animal may go along without developing anemia. But, just as soon as some extra strain, pathologic or physiologic, enters there is no factor of safety to compensate and anemia results. Thus, in achylia patients without anemia, the factor of safety is still adequate, their intestinal *digestion is sufficient; but in achylic patients with anemia, the* loss of gastric digestion has abolished their factor of safety or their intestinal digestion is not sufficient to meet their body needs. The evidence which I have to bring forward in support of this explanation is that one can control the anemia that develops in these achylic dogs by giving large doses of cod liver oil by mouth, or of the secondary anemic factor in liver, plus iron, subcutaneously. In regard to the iron, I believe one might get results by giving large doses by mouth; but since it is difficult to get the dogs to take large doses of iron, the ferric citrate is given subcutaneously.

Dr. Martin E. Rehfuss, Philadelphia: Some years ago I made studies on 200 men for more than eight years. I found that the average total acidity could be represented in cereals at about 70 to 80. If one studies milk, the incidence approaches 80 to 100, and when one tries meat, one gets a total acidity of beef at about 120. In other words, stomachs which show an achlorhydria with an Ewald meal will not show this condition with a meat meal in many instances; therefore the first suggestion I have to make is the thought that, when there is an achlorhydria with an ordinary Ewald meal, one should test with histamine and at the same time with a particular group of meat products. I was amazed to find figures as high as 130 in health and that made me believe there was no such thing as true hyperacidity. With regard to achylias: I am not speaking from statistics, but I believe that the congenital idea is not as sound as we are taught to believe. Years ago I studied a number of men after an influenza epidemic, and almost all of them had achlorhydria. I made secretory studies in acute pneumonia and typhoid, and in groups of acute infections, and in many of them there is a temporary condition which approximates the thing Dr. Eggleston speaks of; therefore, I believe that one should look at this as an expression of an altered mucous membrane of the stomach. If I make the same observations day after day, I am led to believe that there is some organic impairment of the mucous membrane of the stomach; and if I get a negative roentgenogram showing no organic disease in the stomach wall, I look further into the cause of that particular observation. My attention in the last few years has been attracted to the question of the sinuses because *in so many of these cases there is sinus involvement.* When one puts the tube in the fasting stomach, there is mucopus in the stomach, which doesn't come from the stomach wall. Presumably it is swallowed mucopus because it is frequently aerated and not intimately mixed with the gastric contents and there is a purulent lesion somewhere above that tract and that lesion may be tonsillitis or sinusitis, and in many instances it is a pulmonary lesion. Many of these people for years have swallowed that sort of thing and the result is that they have a low grade chronic gastritis.

Dr. Elmer L. Eggleston, Battle Creek, Mich.: Many of the points which I attempted to bring out in the paper have been more satisfactorily brought out by the discussers. I am sorry if I left the impression, as Dr. Crohn has suggested, that achlorhydria is a disease; nevertheless, one must *conclude that* it is a symptom of a pathologic condition. My impression is that a gastritis obtains which in the majority of cases is responsible for the achlorhydria, and this might be considered the pathologic condition. The idea that I wished to bring out in this paper was that the individual with achlorhydria is not normal from a health standpoint. He must be carefully watched, as achlorhydria is a warning that a possible pathologic process obtains which if not checked may later become serious. A gastric analysis, if made, should warrant careful attention of the results. As Dr. Ivy has remarked, the individual exhibiting an achlorhydria is highly susceptible to certain diseases. His resistance has been definitely lowered and he is entitled to careful observation. The question of Dr. Rehfuss relative to achlorhydria obtaining in 10 per cent of patients exhibiting gastro-intestinal symptoms as being a little too high would warrant my repeating that this has been found in a large series of cases by a number of observers. In canvassing some 4,000 cases that had been studied with the fractional test meal, this was the percentage observed. With the Ewald meal I found a much higher proportion, as high as 18 per cent exhibiting achlorhydria at the end of an hour. It is true that not all these cases were studied after the use of histamine and I am not reporting them as true cases of achlorhydria; nevertheless, one must recognize that these individuals exhibit abnormal digestive secretions and that the protein digestion may be definitely subnormal. It is largely for this reason that one should do everything possible to protect them from injury which may result because of this.

PROSTATIC OBSTRUCTION

ELECTROCARDIOGRAPHIC STUDY OF THREE HUNDRED AND TWENTY-ONE CASES: A FURTHER REPORT *

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The frequency with which surgery is required in men past middle life with benign hypertrophy or carcinoma of the prostate renders of prime importance an accurate appreciation of the condition of the heart. This study, which is a continuation of a previous report,[1] aims to determine the incidence and the predominant types of heart disease in these patients and is based on a careful analysis of 321 unselected cases of prostatic obstruction.

Chronic myocardial degeneration, accompanied usually by arteriosclerosis, was the predominant type of heart disease in 115 cases. There were two cases of syphilitic aortic disease, one with aortic regurgitation and one with aneurysm. There were three of mitral regurgitation which may have been due to rheumatic fever. Willius[2] in 1925 at the Mayo Clinic, in a similar study of 705 cases, found only 7 with rheumatic valvular lesions. The absence of very few frank cases of rheumatic heart disease is not surprising, since those individuals so rarely reach the age of 50. Of the types due to vascular changes, there were eight with angina pectoris and six with unquestioned coronary thrombosis. There were ten patients with auricular fibrillation and three with flutter. Only six had unmistakable signs of cardiac decompensation.

The age distribution of these patients and the number with myocardial disease and left axis deviation in the electrocardiogram appear in table 1.

Of the 227, or 70 per cent of the total, between the ages of 60 and 80, 39.2 per cent showed definite evidence of myocardial disease. Willius[2] reports 42 per cent with cardiovascular disease in his series.

The frequency of left axis deviation or preponderance of the left ventricle may be due to moderate degrees of left ventricular hypertrophy produced by increased peripheral resistance which is the result of vascular disease; or it may be due to changes in the position of the heart, the most common cause of which is obesity.

TABLE 1.—*Age Distribution*

Age	Number of Cases	Per Cent of Total	Patients with Left Axis Deviation		Patients with Heart Disease	
			Number	Per Cent	Number	Per Cent
44-49	16	4.9	7	43.7	3	18.7
50-59	68	21.2	34	50.0	19	27.9
60-69	127	39.6	80	62.9	48	37.8
70-79	100	31.2	67	67.0	41	41.0
80-86	10	3.1	5	50.0	4	40.0
	321	100.0	193	60.1	115	35.8

The systolic blood pressures of these patients grouped for each 20 mm. of mercury is listed in table 2.

From table 2 it is seen that there is a greater frequency of the higher systolic blood pressures in the groups showing myocardial changes than in the corresponding groups without apparent heart disease.

Syphilis seemed to be of little importance in this group, for of 292 blood Wassermann tests only 6, or 2 per cent, were positive. Only one of these patients had syphilitic heart disease, and in none did the disease affect the operative risk.

An electrocardiogram was done in every case in order to determine the value of this procedure in indicating the condition of the heart muscle. The diagnosis of myocardial damage was based on definite slurring or notching of the Q-R-S waves in at least two leads, prolongation of the Q-R-S beyond 0.1 second, or inversion of the T wave in leads 1 or 2.

TABLE 2.—*Systolic Blood Pressures*

Systolic Pressure	Without Heart Disease		With Myocardial Disease	
	Number	Per Cent	Number	Per Cent
80-99	..	....	1	0.8
100-119	42	21.5	10	9.5
120-139	83	43.0	33	31.4
140-159	43	22.0	32	30.5
160-179	17	8.2	11	10.5
180-199	7	3.5	10	9.5
200-219	2	1.0	2	1.9
220-239	1	0.5	3	2.8
240-259	..	....	2	1.9
260-279	..	....	1	0.8
	195		105	

Of the 115 patients with myocardial disease, 90, or 78 per cent, had abnormal electrocardiograms. The value of this observation was demonstrated in a number of cases in which the clinical examination showed an apparently normal heart while the electrocardiogram gave evidence of myocardial changes. This test, as recommended by Smith,[3] is of considerable aid in the cases in which there is a question before operation of cardiac disease.

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* From the Presbyterian Hospital of Chicago and the A. D. Thompson Fund, Rush Medical College of the University of Chicago.

* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Bacon, C. M.: Kretschmer, H. L., and Woodruff, L. W.: J. Urol. **25**: 335 (March) 1931.

[2] Willius, F. A.: J. Urol. **13**: 337 (March) 1925.

[3] Smith, G. G.: The Circulation as a Factor in Prostatic Surgery, J. A. M. A. **89**: 925 (Sept. 17) 1927.

In the preparation of these patients with heart disease for prostatectomy, rest in bed is essential until the cardiac function is improved. Next in importance, urologists have for many years stressed the fact that the intake of fluids be increased in order to combat infection, to treat the impaired renal function and to relieve the extreme dehydration. It is not uncommon to give as high as 6,000 or 7,000 cc. of liquids daily by mouth, by the rectum and subcutaneously. Although the administration of such large amounts of fluids is of great value, the quantity should not be so large as to embarrass the heart in patients with myocardial disease.

The decompensated cases require long periods of rest in bed with maintenance doses of digitalis. Slow decompression of the bladder in acute retention is even more important in these cases than in the ordinary ones. Since the blood pressure continues to fall for some time after drainage is started, frequent observations should be made before operation to be sure that the pressure is maintained at a constant level.

Although opinions differ as to the best anesthetic to be used in these patients, we have obtained the most favorable results with sacral anesthesia. This method does not produce the marked fall in blood pressure obtained in spinal anesthesia, nor does it produce the cardiac embarrassment or respiratory complications associated with ether, ethylene or nitrous oxide.

Certain individuals with severe decompensation can never be brought into condition for second stage prostatectomy, although they may be considerably improved following cystotomy and catheter drainage. The following report illustrates such a case:

Case 1.—A man, aged 82, complained of frequency, burning and pain on urination and occasional hematuria of ten years' duration, and for two weeks difficulty in voiding, requiring frequent catheterization. There were no complaints referable to the heart and no previous illnesses except pneumonia thirty years before. Examination showed the heart markedly enlarged to the left, no murmurs, and an occasional extrasystole. There was no peripheral edema but there were râles in the chest. The blood pressure was 130 systolic and 55 diastolic. The prostate was moderately enlarged and a large bladder diverticulum was visualized on the cystogram. Roentgenography showed lumbar vertebral arthritis and considerable calcification of the arteries. The electrocardiogram showed a regular rhythm with left axis deviation, a negative T wave in lead 1 and slurring of the Q-R-S waves in leads 2 and 3. Cystotomy and resection of a large diverticulum was performed, following which the patient progressed favorably for three weeks, when a marked irregular rhythm was observed. The electrocardiogram showed an auricular flutter wth an auricular rate of 300 and a ventricular rate of 150. The patient was then put on digitalis and at the end of two weeks normal rhythm was resumed. At this time a left sided hemiplegia occurred, probably due to a cerebral embolus occurring with resumption of sinus rhythm. The patient then gradually improved, leaving the hospital seven weeks after operation. Because of this stormy postoperative course due to the bad cardiac condition, it was evident that a second stage prostatectomy would be hazardous at this time. We are still awaiting cardiac improvement before attempting further surgical procedure.

There were four postoperative deaths directly due to heart disease. Two of these were cases of coronary thrombosis, of which one had shown definite evidence of severe myocardial damage, so that the sudden termination was not unexpected, although this did not occur after the prostatectomy but following repair of the suprapubic fistula thirty-seven days later. The other was entirely unforeseen, as the patient gave no evidence of heart disease either on physical examination or in the electrocardiogram. The patient had a sudden attack of epigastric pain with shock two weeks after the first stage and died three days later. A third patient who gave no complaints or physical signs suggestive of heart disease, but had in the electrocardiogram an inverted T wave in lead 1, died twenty hours after a diverticulectomy from sudden myocardial failure. The fourth death occurred eighteen hours after median bar excision in a man who had evidence of long standing rheumatic heart disease with definite myocardial changes, although he appeared to be in good condition at the time of operation.

The case histories of those dying after operation as a result of cardiac disease may be thus summarized:

Case 2.—A man, aged 76, complained of nocturia and burning for one year and of retention of urine requiring frequent catheterizations for nine months, with a good deal of pus and occasional blood. Up to this time, except for a marked tremor for many years, he had been in excellent health, carrying on active physical exercise, including mountain climbing for two or more hours daily. Lately he had noticed a dull ache in the anterior region of the chest, especially with the pain produced by the insertion of a catheter. Slight swelling of the feet had appeared at times. There was no dyspnea or cough. The past history was irrelevant.

Examination showed the heart slightly enlarged to the left, an occasional extrasystole, and the radial arteries slightly beaded and thickened. The prostate was much enlarged. The blood pressure was 152 systolic and 78 diastolic. The electrocardiogram showed slight left axis deviation, slurring of the Q-R-S waves in leads 2 and 3, and evidence of myocardial damage.

Suprapubic cystotomy under sacral anesthesia was done twelve days after admission to the hospital, following which he did well. Nineteen days later, under sacral anesthesia, the prostate was removed with little bleeding. He recovered so that he was up and about in two weeks. Five weeks after prostatectomy, repair of the suprapubic fistula was done under ethylene anesthesia. Six hours later he died very suddenly, gasping for breath. Autopsy showed an old thrombus in the anterior descending branch of the left coronary artery and a recent thrombus in the circumflex branch. There were multiple scars in the left ventricular wall and marked generalized arteriosclerosis.

The observations made at autopsy confirmed the results of the electrocardiographic study of this case. This weakened myocardial condition predisposed the patient to the second thrombosis in the circumflex branch, which resulted in death.

Case 3.—A man, aged 74, was admitted to the hospital complaining of marked frequency, urgency and difficulty in urinating. He gave no symptoms referable to the cardiovascular system. He had always been in good health. The heart appeared normal to physical examination. The blood pressure was 158 systolic and 78 diastolic. The electrocardiogram showed moderate left axis deviation and a low voltage of T in all leads, the greatest being 0.1 millivolt in lead 1. Cystoscopy showed marked prostatic hypertrophy with a large middle lobe and a bladder stone. Suprapubic cystotomy under sacral anesthesia was followed by a satisfactory postoperative course without unusual complaints. On the fourteenth day he was seized with excruciating pain in the epigastrium and went into profound shock with dyspnea and cyanosis. His blood pressure on the following day was 90 systolic, 54 diastolic. The electrocardiogram showed a depressed S-T interval in lead 1 and a raised S-T with a "cove plane" T in lead 3. The patient died on the third day after the accident. Although no autopsy could be performed, clinically death was due to a coronary thrombosis.

Case 4.—A man, aged 63, complained of frequency, pain and difficulty in urinating for three or four years. He had had several attacks of complete retention of urine for which he had had bladder irrigations. There were no cardiac symptoms such as shortness of breath, edema or cough. Examination of the heart revealed a slight accentuation of the aortic second sound and no apparent enlargement. Rectal examination showed an enormously enlarged prostate. Cystoscopic examination showed a severe generalized cystitis, intravesical hypertrophy of the prostate and the opening of a diverticulum. The blood pressure was 174 systolic and 100 diastolic. The electrocardiogram showed a negative T in lead 1 and notching of the Q-R-S waves in leads 2 and 3 indicating probable myocardial changes. The patient was given preliminary catheter drainage for two weeks with irrigations. The infection rapidly cleared up and he was subjected to diverticulectomy. Following the operation, he went into profound shock. His pulse when he returned from the operating room was 160 and very weak, and his blood pressure was 40. Pulmonary edema and cyanosis developed rapidly, followed by death twenty hours after operation.

Case 5.—A man, aged 69, had had a prostatectomy twelve years previously. Four years later he began to have difficulty in emptying the bladder, requiring the frequent use of a catheter for the past eight years. A suprapubic fistula had been present for four months. Fifteen years ago he had had rheumatism resulting in a valvular heart lesion. Slight exertion caused dyspnea and some palpitation, but there was no edema or precordial pain. Examination of the heart showed the left border 13 cm. from the midline in the fifth interspace, the right border 3 cm. in the fourth interspace. A loud systolic murmur was heard over the entire precordium, most marked in the tricuspid area. The blood pressure was 125 systolic and 75 diastolic. Cystoscopic examination showed a severe generalized cystitis with a median bar and a large left lobe of the prostate. The electrocardiogram revealed marked left axis deviation with an inverted T wave in lead 1. After two weeks of drainage and irrigations of the bladder a middle lobe excision was done under sacral anesthesia. Following operation there was vomiting all day and in the evening. The pulse became more rapid and weaker. Dyspnea and cyanosis gradually became more marked with irregularity of the pulse and respiration. Death occurred about eighteen hours after operation.

A fifth patient had a very difficult time following operation because of heart disease but recovered:

Case 6.—A man, aged 61, complained of difficulty, frequency and urgency in urinating for eight years, getting gradually worse. There were no complaints of dyspnea, edema, precordial pain or palpitation. The heart was apparently not enlarged though the chest was barrel-shaped. The peripheral vessels did not seem sclerotic. The blood pressure was 150 systolic and 88 diastolic. The electrocardiogram showed auricular extrasystoles and marked left axis deviation. The prostate was greatly enlarged. Prostatectomy was done under sacral and local anesthesia, after which the patient did fairly well until the fifth day, when he developed marked dyspnea, cough and a dependent edema. The heart became enlarged, very rapid, with a rate of 154, and an absolute irregularity. An electrocardiogram showed an auricular fibrillation. There were many moist râles in both lungs. Digitalis was given by hypodermic injection, after which he improved gradually with restoration of a regular rhythm on the fifteenth day. From this time on his recovery was uneventful and he was discharged thirty-seven days after operation. When seen two months later he was in good condition except for slight edema of the ankles.

This case illustrates the value of careful postoperative observation and treatment under the supervision of a competent medical man.

From a review of these histories it is evident that the most important consideration from the cardiac standpoint is the recognition of the presence of heart disease by the use of all diagnostic methods available. When surgery is necessary in these individuals, every precaution may be taken and a sudden fatal termination will not be unexpected and will occasionally be avoided.

A postoperative study of a group of these patients was made to determine whether there was any improvement of the heart after prostatectomy. As a result of relief from infection, freedom from pain, and the disappearance of night urination insuring more complete rest, it might be expected that the cardiac condition should improve.

Of forty-seven men returning for observation between six months and two years after operation, there were thirty-two who were free from cardiac disease at the time of their previous admissions. Five of these have developed definite myocardial disease, demonstrated in four by electrocardiographic changes, a marked rise in blood pressure in two, and increased cardiac enlargement and subjective symptoms of circulatory embarrassment in two. The remaining twenty-seven are in good health. Of fifteen with myocardial disease at the time of their first admission, eight are now definitely improved. In five of these there is a marked decrease or absence of previous edema. Two others are definitely worse. In three with auricular fibrillation the arrhythmia remained unchanged. In general, considerable improvement is apparent from the cardiac standpoint in these patients, mainly evidenced by relief from subjective complaints, such as decrease in dyspnea and edema, but with few changes in the physical or electrocardiographic observations.

SUMMARY

A study of 321 cases of prostatic obstruction demonstrates the frequency of myocardial disease. There were 35.8 per cent with heart disease in the group of all ages.

The frequency of left axis deviation and myocardial disease in relation to age shows a progressive increase in these conditions with advancing years.

Of a total of 115 with heart disease, 90, or 78 per cent, showed abnormal electrocardiograms.

The preoperative and postoperative care and choice of anesthetic in patients with cardiac disease is necessary.

The four postoperative deaths due to heart disease are analyzed.

A series of forty-seven patients returning some time after operation show in general considerable improvement in cardiac function as a result of the relief obtained by surgery.

CONCLUSIONS

The electrocardiographic study emphasizes the value of recognizing preoperatively the presence of cardiac disease in patients with prostatic obstruction irrespective of clinical cardiac signs. The electrocardiogram is, however, an aid, not the final criterion, in the diagnosis of myocardial disease.

ABSTRACT OF DISCUSSION

Dr. L. F. Bishop, Jr., New York: There is no more difficult question than when an internist has under his care an individual suffering from a poor myocardium, and this individual either suddenly or slowly develops a prostatic condition and becomes a combined cardiac and urologic problem. For example, a case I have seen recently of a man, aged 64, who had at least two definite attacks of coronary thrombosis and had been under my care for a number of years, suddenly developed, with little previous trouble, an acute retention. I was therefore confronted with the problem of whether he is to have a prostatectomy or to be dependent for the rest of his life on a catheter, with possible subsequent infection. A prompt and skilful operation by a colleague of mine resulted in a restoration of the bladder function. It is questions like these which Drs. Bacon, Kretschmer and Woodruff have helped us to answer. It is probable also that chronic urinary retention with resulting renal changes is an important factor in enhancing the progress of a mild or latent degenerative cardiovascular lesion. Patients with distinct urinary retention who, without operation, would of necessity have to resort to a catheter, should be given the opportunity of surgical intervention provided the cardiac condition can be restored sufficiently to permit the operation to be performed with reasonable safety. I can only agree that the electrocardiograph is but one means of determining cardiac efficiency. In regard to the disappearance of arrhythmias, in the case reported there was present an extrasystolic arrhythmia which disappeared following prostatectomy. Other men have reported the disappearance of arrhythmias following prostatectomy.

THE TREATMENT OF POLIOMYELITIS

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Poliomyelitis is a disease that is on the increase, but, despite the number of cases seen, the early diagnosis is not made as frequently as it should be, and, judging from the late results, proper remedial measures are often neglected.

The early treatment should be by the injection of convalescent serum or that taken from patients who at some time have had the disease. Stocks of this serum should be kept on hand by health departments, hospitals and similar institutions. Divided into proper doses, placed in small bottles and dried, it keeps practically indefinitely, and all that is needed is to add sterile water to it to make up the required amount.

During the febrile period all efforts at treatment should aim to make the patient as comfortable as possible, using the technic which would be applied to any acute infection. Rest is essential and the late results are best when that is insisted on, whether the case is mild or severe. The patient should be kept in bed as long as there is pain, but during this period it may be advisable to lift him to another bed or comfortable chair while the bed is aired or made. This change is often most grateful to the patient and if it can be done without undue pain or fatigue apparently does no harm. When the legs are affected the patient should be kept either in or on the bed for at least six months and longer in many cases, as I shall outline in considering fatigue. Too early use of the muscles, overuse and overfatigue definitely do harm either by prolonging convalescence or by more or less permanently damaging certain muscle groups.

Pain may not be present, may be trifling or mild or may be of a very intense grade. There is a fixed idea in the minds of both the public and the profession that poliomyelitis is a painless disease, and many incorrect diagnoses of rheumatism, arthritis, neuritis, and the like are made in consequence.

Pain may be due to involvement of the posterior nerve roots and sensory nerves; to contractions in the muscles; to changes in and about the joints; to fatigue. The first named is the worst and when combined with muscular contraction gives the patient the sensation of fifty million little devils armed with red hot pincers twisting the individual muscle fibers while a like number with red hot skates formed like cockleburs skate about the joints and fasciae. This pain requires sedatives; depressants should be avoided and opium derivatives should be used with caution. The pain due to contractions is best treated by immobilization by applying light plaster casts and cutting them so that the patient or the extremities may be lifted out for bathing, massage, manipulation and rest. Various splints may be used, but casts are as a rule more satisfactory. The relief from pain follows as soon as the muscles quiet down and the patient becomes adjusted to the appliance. The same treatment is used for pain about the joints. The pain of fatigue due to being in one position a long while is usually noticed more in patients whose affected parts are not immobilized and may be relieved by changing the position or, if the patient is not tender, by light massage or passive movements.

General muscular tenderness requires as little touching and handling of the patient as possible and when a trained nurse is out of the question, a few lessons in handling such patients should be given the attendant.

Any muscle that is put on a stretch is liable to be damaged, and this may lead to permanent disability of such a muscle. This is most true of the deltoid, and if involved the arm should be kept on pillows either with or without bandages to keep it well up at least part of the day. As soon as the patient is up, the arm should be kept in an airplane splint if the patient is moving about or on an arm rest at right angles, placed on the arm of the chair.

Failure to prevent deformities due to contraction of the muscles, tendons and fasciae is the greatest sin of omission. The contractions take place very quickly; a week or ten days' neglect may result in a foot drop which may cost the patient much pain and the physician much trouble. No patient with extensive paralysis escapes without contractions, but they should be kept at a minimum by care and treatment. If they occur they should be treated as early as severe pain permits; no contraction can be stretched without pain to the patient, who may be truthfully assured that the pain used in preventing and correcting contractions is nothing compared to what must be experienced if the contraction is allowed to go untreated until it gets so bad as to require forcible stretching with or without an anesthetic or an operation.

Immobilization in the correct position takes care of part of this; massage and passive motion of as much of the remainder as is amenable to treatment. Every day the patient should have the immobilizing apparatus removed, the parts bathed, rubbed with alcohol, powdered and passive movements made in all directions. If there is severe nerve pain and the patient is extremely sensitive to all manipulation and even to touching, this may be reduced to a minimum and in some cases even omitted altogether except for cleanliness. As long as the muscles are tender to touch, massage should be omitted entirely or only such light massage used as is pleasant and not painful. It often requires considerable discrimination in nervous patients to tell what is psychic or complained of through fear of being hurt, but careful observation will generally allow the distinction to be made with reasonable certainty.

As power returns the patient will move about of his own accord, but he should not be allowed to overdo this. At first the movements should be partly voluntary and partly assisted by the physical therapist. Fatigue should be avoided; too little treatment of this kind during the first six months is better than too much, and in fact at any time. The patient is usually overanxious to do and the physical therapist to get results, until the patient relapses through fatigue. The best method is to use a movement or two a day at the beginning and increase gradually to five and then to ten such movements at a treatment. Later the patient may make such voluntary motions as may be possible under supervision to see that he is exercising the proper muscles and not substituting other muscle groups to do the work. As the extremity becomes functionally capable, ordinary movements such as walking should be systematically carried out in the same manner.

The most useful suggestion concerning exercise has grown out of the recent Georgia Warm Springs Foundation work, where under Dr. LeRoy Hubbard a system of after-treatment has been developed. This consists in graded exercises given by trained physical therapists for the most part while the affected part is submerged in water at a temperature of about 90 F.

As Archimedes pointed out, the body is as much lighter in water as the volume of fluid it displaces. Under water, muscles that are useless in the air may be moved, and daily exercise properly directed enables the patient to secure a maximum development of any muscle which has any innervation left. Swimming is often possible even when the patient is badly damaged, and there is no better exercise for stimulating the growth of the muscle and for developing coordination. The mental stimulus from the association with others similarly handicapped is of great value in creating and maintaining the morale of the patient. The results are often surprisingly good.

Fatigue is to be avoided. All poliomyelitis patients are unusually subject to tire, and nothing can be more destructive both to muscle power and to morale. It may be local in a group of muscles and lead to pain, atrophy, loss of power or a neuritis with pain and a recurrence of the paralysis either partial or complete. It may be general, a complete nerve exhaustion causing the patient to lose time and adding to his discomfort.

In local muscle group fatigue the patients may or may not have a warning before the worst effects are manifest. Usually some degree of local fatigue is present, which only too often is overlooked in a desire to do or to keep up with others who are stronger.

General fatigue almost always comes on without any warning, or the danger signals are so slight as to be disregarded by the patient and his advisors. It is as if a man had a sum of money in the bank and checked on it without any accounting; some day without warning the bank sends notice of no funds. So in poliomyelitis a general tiredness may supervene in a patient who thought he was doing unusually well. Rest in bed, pleasant light diversion to fill the long and tedious hours of enforced idleness, which only too often destroy the patient's morale, and carefully regulated massage, good food and general care are the indications—all of great importance. Only too often are such patients put to bed to stew and fret mentally when a little sensible diversion would avoid much suffering.

One sign of undue fatigue, which has been carefully followed in only one case but which should receive careful study by those so situated as to make the necessary observations, is the increase in the volume of urine, especially of the nocturnal urine, for several days before there is any realization of fatigue by the patient. The output returns to normal as soon as the patient is rested.

SUMMARY

The treatment of poliomyelitis after the febrile period consists in rest, relief of pain, prevention of deformity, massage and exercise, which may be passive, assisted, voluntary, carried out under water, but always supervised. The increase in the volume of urine, especially that voided at night, is suggested as a possible indicator of serious fatigue.

11 East Chase Street.

Clinical Notes, Suggestions and New Instruments

BENZOYL PEROXIDE — AN APOLOGY *

Paul D. Lamson, M.D., Nashville, Tenn.

A year ago I[1] published a note on the use of benzoyl peroxide as a dusting powder in the treatment of poison ivy intoxication, stating that this was a harmless substance, that theoretically it should be of value, being an active oxidizing agent and absorbent and, above all, acting as a local anesthetic which might be of great value in the relief of itching. Benzoyl peroxide has now been given a trial in possibly 100 cases with about the results that might be expected. Unbelievable relief within fifteen or twenty minutes after the application of the powder has been observed in several cases and great improvement in the poison ivy lesion itself. Others report only fair results, while still others state that benzoyl peroxide is entirely ineffective.

The apology that I should like to make is not one regarding the therapeutic value of this substance but for having allowed a dangerous property of this and other organic peroxides, namely, inflammability and explosibility, to have slipped my mind at the time of publication. I must confess the ridiculousness of offering an explosive for general therapeutic use without sufficient warning. Explosive substances, as for example, ether, trinitrophenol and glyceryl trinitrate, are used in medicine but their dangerous properties are generally known. Although I wish to apologize for my mistake, I should like to point out that there was some reason for this apparent ignorance or carelessness on my part. When I first began work in pharmacology a bottle of benzoyl peroxide powder was always kept in the laboratory and used for years as an antiseptic dusting powder in dogs' wounds. As this was in such constant use and as no mention is made of the dangerous properties of this substance in any references to its use in medicine of which I am aware, it was natural to look on it as a harmless substance. However, as the result of a serious accident from the explosion of a peroxide, which happened to one of my friends, I was well aware of this general property of organic peroxides; so much so, in fact, that I consulted a group of chemists before grinding up some granular benzoyl peroxide which we had in the laboratory. They all felt that there was no danger in this particular instance, and we ground up large amounts of it for a year or two before asking a pharmaceutical house to furnish us with powdered material. We never had an accident with this substance in spite of grinding it frequently and carrying it about in all manner of ways during the summer. On account of this continued use of the substance the possibility of its being dangerous went entirely out of my mind.

Immediately after the publication of these observations, however, I was questioned as to how this substance could be sent through the mail because of its explosibility, in spite of having received it up to that time. Shortly after this a man who had powdered his hands well with benzoyl peroxide and then wrapped them up in a bandage lighted a cigaret, which ignited the benzoyl peroxide and burned his hands badly. Because of these properties of benzoyl peroxide it should not be used undiluted as a dusting powder, as under certain conditions of extreme dryness it might become explosive and in any case would ignite if brought in contact with an open flame. As ivy poisoning occurs frequently in children in camps where they are constantly experimenting with fire, it might be a dangerous substance to use in powdered form. It is, however, possible to make a paste of benzoyl peroxide powder and lubricating jelly (containing glycerin), which paste has certain advantages. It is nonexplosive, is no more inflammable than a bandage or other common organic substances, and has the advantage of clinging to the skin, while the powder falls off unless kept in place by a bandage. This paste has been used in a good many cases and about the same percentage of patients have received relief from it as with powdered benzoyl peroxide.

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* From the Department of Pharmacology, Vanderbilt University School of Medicine.

[1] Lamson, P. D.: Benzoyl Peroxide in the Treatment of Poison Ivy Intoxication, J. A. M. A. 95:663 (Aug. 30) 1930.

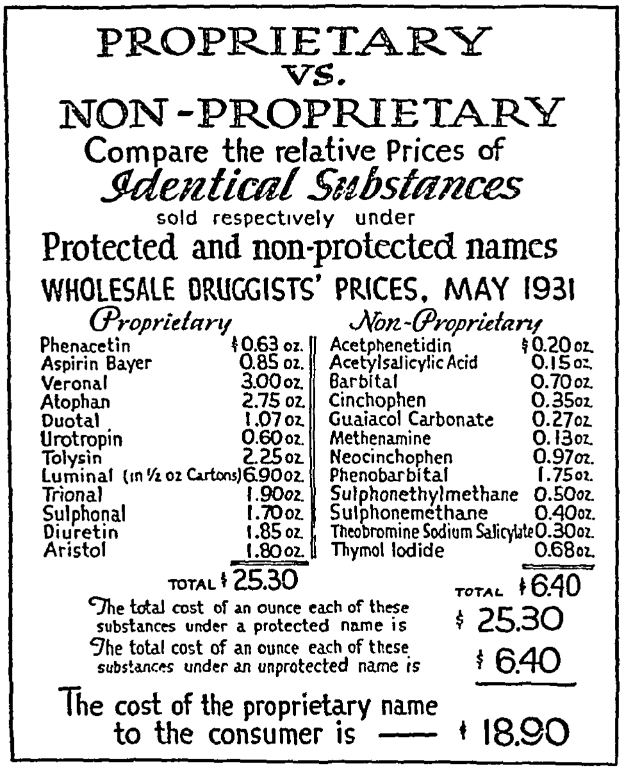
Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized the publication of the following report. W. A. Puckner, Secretary.

OVESTRUMON NOT ACCEPTABLE FOR N. N. R.

Under the proprietary name "Ovestrumon" the Vitalait Laboratory of California, Ltd., market an ovarian extract preparation as "A balanced and standardized extract containing the estrus producing hormone of the ovary plus 25% corpus luteum." The preparation is claimed to be particularly valuable because it contains "the correct balance between the corpus luteum and the follicles" and to be superior to ovary preparations claimed to contain only the ovarian hormone. It is claimed to be "useful in any and all of the symptoms which accompany the menopause."



PROPRIETARY
vs.
NON-PROPRIETARY
Compare the relative Prices of
Identical Substances
sold respectively under
Protected and non-protected names
WHOLESALE DRUGGISTS' PRICES, MAY 1931

Proprietary		*Non-Proprietary*	
Phenacetin	$0.63 oz.	Acetphenetidin	$0.20 oz.
Aspirin Bayer	0.85 oz.	Acetylsalicylic Acid	0.15 oz.
Veronal	3.00 oz.	Barbital	0.70 oz.
Atophan	2.75 oz.	Cinchophen	0.35 oz.
Duotal	1.07 oz.	Guaiacol Carbonate	0.27 oz.
Urotropin	0.60 oz.	Methenamine	0.13 oz.
Tolysin	2.25 oz.	Neocinchophen	0.97 oz.
Luminal (in ½ oz Cartons)	6.90 oz.	Phenobarbital	1.75 oz.
Trional	1.90 oz.	Sulphonethylmethane	0.50 oz.
Sulphonal	1.70 oz.	Sulphonemethane	0.40 oz.
Diuretin	1.85 oz.	Theobromine Sodium Salicylate	0.30 oz.
Aristol	1.80 oz.	Thymol Iodide	0.68 oz.
TOTAL	$25.30	TOTAL	$6.40

The total cost of an ounce each of these substances under a protected name is $ 25.30
The total cost of an ounce each of these substances under an unprotected name is $ 6.40
The cost of the proprietary name to the consumer is —— $ 18.90

A reduced reproduction of a type of poster that has been shown in the A. M. A. Chemical Laboratory exhibits at the Annual Sessions of the American Medical Association for the last ten years.

In the information furnished to the Council it is stated that to prepare the product "fresh glands are extracted, trimmed and adjusted so that the proper proportion of corpus luteum to follicular fluid is arranged"; that a "watery extraction and digestion process is followed by a filtration, after which the extract is deproteinized and the reaction is readjusted." It is stated that the extract is then filtered and one-half per cent of phenol is added; that it is again filtered and then tested biologically, the required standard being not less than 30 Allen-Doisy units per cubic centimeter.

The information received from the Vitalait Laboratory of California, Ltd., was submitted to consultants of the Council for an opinion. In his reply one of the consultants pointed out that the description of the product is too incomplete to permit the formation of any opinion as to the method of preparation. He observes that no one knows what the "proper proportion" of corpus luteum and follicular hormone is, stating that the experiments of Weichert and of Corner both make it likely that in every attempt to imitate the physiologic condition with female sex hormone the so-called follicular fluid should be given for a sufficient period to activate the genital tract before the specific corpus luteum hormone (nidatory hormone) is prescribed. In his opinion the claim that "the correct balance between the corpus luteum and the follicle" is maintained is not warranted. As to the claim that the method of production enables all of the hormones present to be utilized, he stated that this cannot be discussed on the basis of the description of the preparation offered by the firm; as is well known now, it is necessary to extract ovarian material with lipoid solvents to concentrate the female sex hormone and then on the residue to perform an acid-aqueous extraction at low temperature such as was described by Hisaw in order to obtain the nidatory corpus luteum hormone. The information submitted by the firm offers no evidence that these procedures were followed.

A second consultant regarded the marketing of "balanced extracts" as unfortunate, since it is not known whether it is advisable in any case to use the two together. Furthermore, since the term "balanced" appears to indicate a physiologic effect in opposite directions, he questioned how then it would be possible, using the extraction procedure outlined, to ascertain (if balance really exists) the potency of the estrus hormone by the Allen-Doisy assay. He pointed out that the mixing of the follicular with the luteal hormone does not approximate the functions of the human gland except possibly during pregnancy. The consultant stated that there is no scientific foundation for the statement in the firm's advertising concerning the relative proportion of follicle and corpus luteum in fresh ovarian tissue. With regard to the method of preparation furnished the Council, it seemed improbable to the consultant that a single method of extraction would yield appreciable quantities of both the follicular and the luteal hormones. He challenged the statement made by the firm that 0.30 Gm. of fresh tissue will yield 30 Allen-Doisy rat units, stating that he has found only one rat unit per gram of hog liquor folliculi by the same method and that his values are higher than those reported by other investigators.

After consideration of the information submitted by the manufacturer and of the consultants' reports the Council found Ovestrumon unacceptable for New and Nonofficial Remedies.

When the report of the Council's consideration of Ovestrumon was sent to the Vitalait Laboratory of California, Ltd., for consideration, the firm replied that it wished to withdraw the claim that Ovestrumon contains "the correct balance between the corpus luteum and follicles" and to substitute in its place the statement that "Ovestrumon contains corpus luteum and follicular fluid in the proper proportions to produce an extract high in Allen-Doisy units." Regarding the content of "Allen-Doisy units," which had been questioned by the Council, the firm stated that the technician in charge had tested every lot and had accepted none which showed less than 30 Allen-Doisy units per cubic centimeter at the time of ampuling the product. If the technician's assays were correct then it would seem that Ovestrumon rapidly deteriorates with age, for a specimen received from the proprietor when assayed in the consultant's laboratory gave results which indicated that, according to the Allen-Doisy procedure, the preparation contained less than one rat unit per 2 cc. The firm requested the Council to withhold publication of its report until clinical trials that were under way might be completed. It offered to supply the Council with further details concerning the method of manufacture if this would help the firm's case and in the meantime agreed to discontinue active propaganda for its product.

Although ten months have elapsed since the Council's report was submitted to the proprietors, no acceptable evidence for the efficacy of the product has become available. Hence the Council has authorized publication of its report declaring Ovestrumon unacceptable for New and Nonofficial Remedies because it is a preparation of indefinite composition which is marketed with unestablished and therefore unwarranted therapeutic claims and which does not present sufficient originality to be entitled to a proprietary name.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

DROMEDARY FRESH KEEPING COCOANUT

(Contains Sugar, Glycerine and Salt)

Manufacturer.—The Hills Brothers Company, New York.

Description.—A moist shredded coconut mixed with sucrose, glycerin and salt.

Manufacture.—Weekly shipments of fresh coconuts in the shell from Trinidad, Jamaica and Porto Rico, but no kiln-dried or sun-dried coconut meat from the Philippines or other points are used in the manufacture of Dromedary Cocoanut.

The nuts are steamed in the shell to facilitate removal of the shell and inner rind by hand and permitting close inspection of the raw nuts. After a second inspection the nuts are washed, shredded mechanically, and mixed with sucrose, salt and glycerin. The mixture is dried in a current of air, sifted to secure shreds of uniform length, dried at room temperature to a moisture content of 5 per cent and packed automatically in wax-paper lined and wrapped cartons.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	5.1
Ash	0.8
Fat (ether extract)	41.0
Protein (N × 6.25)	4.3
Reducing sugars as invert	0.8
Starch (acid hydrolysis method)	4.1
Sucrose (by copper reduction)	33.2
Crude fiber	4.1
Carbohydrates (by difference) other than crude fiber	40.4
Glycerin	4.3

Calorics.—5.65 per gram; 160.5 per ounce.

Claims of Manufacturer.—A coconut food of good quality.

PABST-ETT

(A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals)

Manufacturer.—Pabst Corporation, Milwaukee.

Description.—A "process American cheese" containing disodium and trisodium phosphates as emulsifiers; with added salt, whole milk and concentrated milk whey.

Manufacture.—American cheddar cheese meeting Wisconsin state standards from cheese factories regularly inspected by state food inspectors is carefully examined for moisture, fat, acidity, taste, odor and general appearance. The acceptable cheeses are stored for aging in clean, dry, well ventilated, sanitary coolers at 7-10 C. until the desired qualities are developed.

Selected aged cheeses are blended to yield a final uniform product of desired flavor, texture and spreading qualities; sharp or mild cheese is worked in in accordance with the requirements of each batch. The selected cheeses are steamed for the removal of paraffin, and the cheese-cloth cover, the outer rind, is shaved off and moldy parts are cut out. The cleaned cheeses are cut up, blended by expert cheesemen, ground, and conveyed to tin lined or stainless steel steam jacketed kettles fitted with mixing devices and a thermometer for control of the temperature of the emulsifying process.

Approximately 50 pounds of ground cheese, the "emusifiers" (disodium and trisodium phosphates) not to exceed 3 per cent of the final product, salt and water are mixed and heated to fluidity. Additional 50 pound quantities of ground cheese are successively added, mixed in and melted until the entire batch charge has been added. The heating and agitation are continued until a temperature of 71 C. is reached, when whey concentrate and evaporated whole milk are added. The semifluid mixture is transferred to automatic filling machines which wrap definite quantities in tin-foil and pack them in paper boxes.

The whey concentrate used is prepared from skim milk by curding with rennin in cheese vats. The whey is separated from the casein and concentrated under reduced pressure to a content of approximately 70 per cent of solids.

The plant and equipment are kept in strictly sanitary condition; the kettles, filling machines, pipes and conveyors are cleansed and steamed each night.

Chemical Composition (submitted by manufacturer).—

	(sample as is) per cent	(moisture free basis) per cent
Moisture	44.0	...
Ash	5.2	9.3
Salt in ash	1.7	3.1
Fat (ether extract)	24.3	43.3
Protein (N × 6.38)	19.9	35.5
Lactose (by difference)	6.6	11 9
Phosphorus (P)	0.33	0.58

Calorics.—3.25 per gram; 92.3 per ounce.

Vitamins.—Contains approximately 280 Sherman vitamin A units per ounce, 46 Sherman-Spohn vitamin B (complex) units per ounce, and determinable amounts of vitamin D.

Claims of Manufacturer.—Pabst-ett contains the usual nutrients of ordinary cheese supplemented with milk minerals and other ingredients of milk whey, which valuable nutrients are discarded in cheese manufacture. It is recommended for all the uses of ordinary cheese, is easily spread, and may be used in a wide variety of dishes and recipes.

KELLOGG'S CORN FLAKES

Deliciously Flavored with Malt, Sugar and Salt

Manufacturer.—Kellogg Company, Battle Creek, Mich.

Description.—A cooked and toasted corn flakes cereal flavored with malt extract, sugar and salt.

Manufacture.—Kellogg's Corn Flakes are made from the best grade of white corn. The shelled corn is cleaned, steamed to soften the hull and then passed through degerminators which separate the hull and germ from the endosperm. The large white hominy grits constituting the endosperm are mixed with a flavoring material of malt extract, sugar and salt and cooked under steam pressure in rotary cookers.

The cooked grits are dried by hot air and then flaked between revolving rolls. The flakes are toasted in rotary ovens. The toasted flakes are conveyed on belts to the packing rooms and packed in sealed waxed-paper inserts in paper cartons.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	2.8
Ash (including salt)	2.7
Fat (ether extract)	0 3
Protein (N × 6.25)	7.5
Crude fiber	0.4
Carbohydrates (by difference) other than crude fiber	86.3

Calorics.—3.78 per gram; 107.4 per ounce.

Claims of Manufacturer.—A good quality corn flakes. They are easily digested and supply the body with heat and energy.

SWAN'S SLICED BREAD

Manufacturer.—Swan Brothers, Inc., Knoxville, Tenn.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 80 per cent patent flour of Southwest wheat, water, lard, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to six hours, after which are added flour, water, salt, sucrose, lard and powdered skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.0
Ash	1.6
Fat (ether extract)	2.8
Protein (N × 6.25)	9.2
Crude fiber	0.4
Carbohydrates (by difference) other than crude fiber	49.0

Calorics.—2.58 per gram; 73.3 per ounce.

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 24, 1931

THE PHYSICIAN AS WRITER, LECTURER AND PUBLICIST

The Principles of Ethics of the American Medical Association emphasize the duty of the physician to aid in educating the public properly regarding the facts of medicine. Thus the medical profession secures public cooperation in the prevention of epidemics and in the control of disease. The manner in which public education shall be carried on has been the subject of acrimonious discussion at various times, probably, no doubt, because customs vary in different communities and because of the lack of any written code providing a detailed consideration of the subject.

The problem has concerned our British colleagues, who set forth in the Handbook of the British Medical Association some basic principles. Thus the principle has been established that medical practitioners should not give lectures gratuitously under the egis of local authorities, and that, although the lecturer must in every case necessarily be approved by the local authorities, there is no reason why any particular class of practitioner should be excluded from delivering such lectures. The British association has urged on its divisions and branches that they should lose no time or opportunity of getting local authorities to take action for the better education of the public in health matters. Lectures for the public have been established in relationship with the annual sessions, and publicity is regularly given to these means of education. On the other hand, our British colleagues have condemned unreservedly prescribing in the lay press in answer to questions.

Considerable clarity is brought into the situation by the recent adoption, through the Comitia Minora of the Medical Society of the County of New York and the council of the New York Academy of Medicine, of a series of principles governing contact of physicians with the public through the press, the lecture platform, lay periodicals and the radio. The necessity for proper publicity and education is recognized in the preamble. Moreover, legitimate news of the election of officers, opening of hospitals and awarding of prizes is recognized as desirable, and the use of a physician's name in this connection is not considered reprehensible. The committee does condemn exploitation or advertisement of individuals featuring their comings and goings, their connections and their achievements and honors—in other words, the kind of publicity most sought by the group characterized by experienced newspaper men as "publicity hounds."

The New York group recognizes, moreover, the desirability of propaganda for the public health, particularly as relates to the prevention of tuberculosis and cancer and the control of diphtheria, and the necessity, because of current press customs, of the use of the names of physicians in connection with such propaganda. This applies equally to authoritative statements on public health made by men who are of established reputation in the fields on which they speak.

In a special section devoted to the radio, the New York group recognizes the necessity of introducing the speaker by name and the desirability of establishing his status through the mention of some official connection which he may have to a university or to a medical organization. At the same time, the bad taste involved in unduly dwelling on the person of the speaker and his unique and outstanding practices is emphasized. It is realized that such addresses are best made under the auspices of established medical organizations. The relationship of educational broadcasting to commercial considerations, particularly since radio in this country is so largely under the control of commercial firms, is provided for in the following paragraphs:

> Commercial organizations may purchase time "on the air" with increasing frequency in order to procure good will, and use it for broadcasting public health information. Frequently, physicians are employed to compose and deliver such broadcasts.
>
> Provided that the commercial organization is of reputable standing, there is no objection to physicians accepting such employment. A physician must not, however, make his address an endorsement or testimonial for the product or products of the organization on whose time the broadcast is given.
>
> In order to safeguard himself and the profession, when such employment is offered him, a physician should confer with the Medical Information Bureau, both as to the standing of the commercial organization with which he is to make a connection and the contents of the paper or papers he proposes to broadcast.
>
> It is also important that the announcer's continuity should be acceptable. No exaggerated or unwarranted claims should be allowed nor should the announcer be permitted to imply that the speaker endorses the commercial organization or its products.

In order to protect physicians who write for magazines and periodicals against undue criticism, the principles provide for a survey of such contributions by the local medical organization. Indeed, as is made clear in the summary, the whole purpose of these principles is to protect the public primarily and to encourage the expression of the views of the profession to the public.

The following regulations have been adopted by both organizations with the understanding that failure to comply will make the offender liable to disciplinary measures by the Medical Society of the County of New York, the Academy of Medicine, or both:

1. A physician shall not directly or indirectly seek publicity for himself tending to call attention to his professional attainments or activities.
2. A physician shall not issue testimonials or endorsements calculated to promote the sale to the lay public of any product in any way related to health or the prevention and cure of disease.
3. A physician shall not issue or authorize for publication his photograph in connection with any matter affecting his or her professional relationship with the public.
4. When reading a paper over the radio, neither the announcer nor the physician should give more than one of his titles nor give notice of his own medical experiences or accomplishments.

Our New York colleagues have here taken an advanced and noteworthy step in establishing the relationships of modern medicine to the public. It is conceivable that experience, the changing of customs and the passing of time may make necessary some modifications in these principles. Nevertheless, their codification provides a basis for study and will do much to establish proper medical education more widely. Those who have looked askance at all such efforts may view with fear and trembling this legalization of medical publicity; those who have taken part in the progress in this field, already made by many county and state medical societies, will see in this code an attempt to bring order into a situation where chaos has been an obstruction.

IS VITAMIN A AN ANTI-INFECTIVE AGENT?

The significance of vitamin A as an essential of human nutrition can no longer be questioned. The demonstration of the occurrence of xerophthalmia as a dietary deficiency disorder has been firmly established. With the growth of our knowledge of vitamins and with the increasing enthusiasm for a better understanding of their rôle in the diet, reports of the effects of defective nutrition are being accumulated in growing numbers. The dramatic accounts of blindness resulting from unsuitable diet, such as Bloch[1] of Copenhagen has repeatedly described, can now be duplicated from records in many parts of the world. They may be anticipated to recur in times of stress such as threaten to face many persons in the coming months unless conditions are materially improved. The phenomena induced in the laboratory in deficiency studies on experimental animals are as a rule quite drastic; they represent the outcome of rather severe conditions of extreme deprivation of some food essential. Accordingly, one hears that the observations of the experimenter should not be translated into terms of human experience. Nevertheless, growing experience is showing that the differences are merely those of degree. The maladies due to partial starvation or deprivation of food essentials are usually slower in manifesting themselves; and the symptoms may be somewhat more elusive for a time. But deficiencies leave their mark sooner or later.

Until recently, physiologists have been engrossed with the consideration of the more obvious manifestations of deficiency disorders. The gross lesions of scurvy, pellagra, rickets and other results of dietary defects have received foremost consideration. It was inevitable, however, that less obvious features would sooner or later demand attention. When mastoid and nasal sinusitis, purulent otitis media, and ocular, respiratory and alimentary tract infections were found to occur in laboratory animals deprived of vitamin A, the problem of "lowered resistance" naturally presented itself. Are we to look on vitamin A specifically as concerned in the development of immunity in the body? The early investigations directed toward the answer to this query were concerned with the status of various sorts of "immune substances" in relation to the diet. The results were frankly disappointing. There was no evidence of a diminished efficiency of the general humoral defenses of the body in vitamin A deficiency. For example, there is no loss in agglutinating power of the blood against various micro-organisms. The observations of Wolbach and Howe at Harvard University gave a better insight into the pathology of vitamin A deficiency. They found that the principal changes were transformations of various epitheliums into a stratified keratinizing epithelium of the squamous type in many parts of the body. This suggests that infection may follow the weakening of the tissues, and it may be due to the breakdown of the local tissue defenses.

These considerations have raised the question as to whether it is proper to refer to vitamin A as an "anti-infective" agent. New light has been thrown on the problem by the recent studies of Boynton and Bradford[2] at the University of Rochester, N. Y. Young white rats were inoculated by intraperitoneal injection of a standard suspension of virulent bacteria after four, six, eight and ten weeks on a vitamin A-free diet. Markedly decreased resistance to such infection, compared with controls receiving cod liver oil, was demonstrated before other signs of vitamin A deficiency appeared. No such susceptibility to similar inoculations was found in young rats on a diet deficient in vitamin D, compared to controls protected by viosterol. The Rochester investigators remark that, whereas from six to eight weeks on the vitamin A-free diet was required to deplete the body stores of vitamin A to such an extent as to result in cessation of growth, marked susceptibility to infection was evident as early as the fourth week on the deficient diet. Increased susceptibility to infection is apparently an early manifestation of a dietary low in vitamin A, having marked influence before the physical signs of deficiency are present. The animals in the group inoculated at four weeks were seemingly healthy, active specimens, maintaining a rate of growth not greatly below the controls receiving cod liver oil. This point, Boynton and Bradford add, is of especial clinical significance since classic signs of vitamin A deficiency, such as xerophthalmia, are rarely seen in this country; yet it is quite probable that relative degrees of vitamin A deficiency exist, predisposing the individual to various types of infection.

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[1] Bloch, C. E.: Effects of Deficiency in Vitamins in Infancy, Am. J. Dis. Child. 42:263 (Aug.) 1931.

[2] Boynton, L. C., and Bradford, W. L.: Effect of Vitamins A and D on Resistance to Infection, J. Nutrition 4:323 (Sept.) 1931.

There has been a lack of cogent evidence that vitamin A can cure infections when the barrier of the mucous membranes has been passed or that it can prevent or cure infections that enter the blood stream. That is why Cramer[3] and others have opposed the use of the expression "anti-infective vitamin." The newer studies pave the way for the possibility, however, that vitamin A may after all do more than maintain the physiologic defenses of the mucous membranes.

SAFE PRODUCTS FOR PARENTERAL ADMINISTRATION

Evidence is gradually accumulating to indicate that dietary essentials which are present in presumably adequate amounts in the food may nevertheless escape proper utilization in the body, so that nutritional failure may ensue. There have been instances of threatened xerophthalmia, for example, which have not been cured by feeding cod liver oil or other sources of vitamin A, because of alimentary conditions that interfered with the absorption of the essential food factor. Relief was brought about by parenteral administration of products bearing vitamin A. Something analogous to this was referred to at the Philadelphia session of the American Medical Association in relation to the liver treatment of pernicious anemia. Castle and his associates[4] of the Harvard University Medical School reported a significant study of two patients, one of whom was relatively unaffected by the daily ingestion of the extract prepared from 300 Gm. of liver and the other by extract derived from 600 Gm. of liver given daily. Both responded normally to a single intravenous injection of extract derived from 100 Gm. of liver. The hematopoietic substance can evidently be utilized directly, without intervention of the digestive functions. The same ready parenteral utilization has been demonstrated for a variety of vitamin preparations involving vitamins A, B, C and D, and likewise the A-precursor, carotene. These facts are of great importance for cases in which, for one reason or another, the oral path of administration is excluded or ineffective. This may happen as the result of obstructions or of serious disturbances of the alimentary mucosa. There is one feature of such medication that needs special and serious consideration.

Liver preparations and products in general derived from cellular material are likely to contain traces at least of protein. Parenteral use of such material at once raises the possibility of allergic reactions with a series of untoward symptoms in their wake. It becomes a desideratum to have protein-free, nonallergic hormone and vitamin products available for injection. This is doubly true if the intravenous or other parenteral use of such products shall prove to be more economical and satisfactory, if not actually necessary in every instance. Allergic problems such as are involved in the use of therapeutic immune serums must be averted. It is gratifying to know that the biochemists are making progress in rendering safe products available. Pernicious anemia has been described as a "conditioned deficiency disorder" due to a failure of some digestive process of the normal stomach to take place in the stomach of the subject with pernicious anemia.

McLester[5] has suggested that a gastric defect such as has been postulated for pernicious anemia with its achylia gastrica may apply similarly to pellagra. It might prevent the pellagrin from properly elaborating from his food the essential substance. Substitution therapy calls for these products in a form in which they are not likely to harm the patient while they are curing the deficiency disorder.

Current Comment

THE ABSORPTION OF LEVULOSE

Not many years ago levulose, or fruit sugar, was a comparatively rare substance represented for the most part by specimens in chemical laboratories. It was not readily secured in a state of high purity or crystalline form. On these accounts this sugar attracted little interest except in the occasional experiments of physiologists and clinicians. More recently, however, owing to improved processes of production, levulose has become more easily available at lower costs. This has tended to awaken new interest in its dietary use and therapeutic possibilities. Levulose is exceptionally sweet—a feature of obvious interest. It is readily utilized in the body, forming a glycogen that is indistinguishable from the storage carbohydrate that results from dextrose. Various investigators have asserted, from time to time, that levulose is particularly valuable in the dietary of patients with diabetes. Perhaps the most enthusiastic report, among the conflicting statements, is to be found in the summary by Joslin.[6] He is inclined to believe that levulose can be used with advantage in the diabetic diet in small amounts daily for intermittent periods. It will raise the respiratory quotient in a diabetic patient more than dextrose and the heat production as well. Levulose seems to cause a different type of metabolism from dextrose, possibly because of the conversion of levulose in part into fat in diabetes or to a more active stimulation of the production of insulin. The possibility that levulose can be converted to dextrose in the process of absorption from the small intestine has been experimentally tested by Burget and Moore[7] at the University of Oregon Medical School. This transformation certainly does not take place within the lumen of the intestine, or in the mucosa during absorption. When levulose is introduced into the bowel, the mesenteric blood shows the presence of the unchanged sugar, whereas it can no longer be detected in the systemic blood. Whatever transformations occur take place beyond the seat of absorption.

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[3] Cramer, W.: Vitamin A and Infections, Lancet **1**: 1153 (May 24) 1930.

[4] Castle, W. B.; Heath, C. W.; Strauss, M. B., and Townsend, W. C.: The Relationship of Disorders of the Digestive Tract to Anemia, J. A. M. A. **97**: 904 (Sept. 26) 1931.

[5] McLester, J. S., in discussion on the relationship of disorders of the digestive tract to anemia, J. A. M. A. **97**: 906 (Sept. 26) 1931.

[6] Joslin, E. P.: The Treatment of Diabetes Mellitus, ed. 4, Philadelphia, Lea and Febiger, 1928.

SERUM SICKNESS IN RABBITS

Extensive studies of the physiology and pharmacodynamics of anaphylactic shock have been made in lower animals, but comparatively few studies of the clinically more important serum sickness. This has been due, in large measure at least, to the lack of a reliable clinical index of serum sickness in laboratory animals. The currently described "serum sickness reaction" in rabbits will therefore probably stimulate experimental interest in this subject. Fleisher and Jones[8] of the St. Louis University School of Medicine injected normal rabbits intravenously, intramuscularly and subcutaneously with from 3 to 10 cc. of horse serum per kilogram of body weight. They noted in 66 per cent of the injected rabbits a characteristic erythema and accompanying edema of the basal third of the ear, the lesion occasionally extending upward to involve the lower two thirds. The reaction usually appeared about the fifth to sixth day after the serum injection. No marked differences have thus far been noted in the severity or time of appearance of this lesion with normal horse serum and commercial antiserums. A few specifically hypersensitive rabbits have been studied, with a resulting shortening of the latent period, the characteristic basal edema and erythema at times appearing within a few hours.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday, and 10:30 a. m. on Saturday, over Station WBBM (770 kilocyles, or 389.4 meters).

The program for the week is as follows:

October 26. How to Liver Longer.
October 31. The Prevention of Diphtheria.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday and Saturday from 12 noon to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

October 26. Everybody's Business.
October 31. Dandruff, Dandruff, Everywhere.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—Dr. Russell L. Haden, Cleveland, addressed the Alameda County Medical Association, October 8, on "Clinical Significance of Volume Index Determinations in Anemia." ——Dr. Benjamin Y. Katz, among others, spoke on "Treatment of Papillomata of the Larynx: Observations with Calcined Magnesia" before the Los Angeles Society of Ophthalmology, October 12.——The Los Angeles Society of Neurology and Psychiatry was addressed, October 21, by Drs. Edward H. Williams and Mark A. Glaser on "Recent Advances in the Treatment of Psychoses" and "Value of Encephalography in the Diagnosis of Brain Lesions," respectively.——Drs. Edward S. Blaine and John W. Nevius will address the Trudeau Society, Los Angeles, October 27, on "X-Ray Visualization of the Small Pneumothorax and Its Diagnostic Significance" and "Bilateral Pneumothorax," respectively.——The San Francisco Pathological Society was addressed, October 12, by Drs. Isabella H. Perry on "Cysticercus Cyst of the Brain"; Alfred H. Heald, "Tumor of the Heart"; Harry M. Blackfield, "Sarcoma of the Stomach"; Leonard W. Buck, "Splenic Implants," and Adelbert M. Moody, "Chloroma of the Uterus."

CONNECTICUT

Dr. Peppard Appointed Director of Mental Hygiene.—The appointment of Dr. Stanley Harcourt Peppard, formerly of New York, as the director of the bureau of mental hygiene of the state department of health was recently announced by Dr. Stanley H. Osborn, state health commissioner. Dr. Peppard, who assumed the position, September 14, succeeds Dr. James L. McCartney, resigned. He graduated from Dalhousie University, Halifax, N. S., in 1923 and was formerly connected with the New York School for Feeble-Minded at Letchworth Village.

GEORGIA

Dr. Campbell Honored.—A complimentary dinner was given to Dr. James L. Campbell, professor of clinical surgery, Medical School of Emory University, October 5, on the occasion of his retirement from the active staff of Grady Hospital after a service of forty years. Mr. Samuel C. Dobbs, chairman of the board of trustees of the hospital, acted as toastmaster. Dr. Weldon E. Person, Atlanta, presented a silver loving cup to Dr. Campbell on behalf of the medical school faculty. Dr. Campbell will continue as a consultant to the hospital and will remain a member of the faculty of the university. He is a past president of the Fulton County Medical Society. Among the speakers on this occasion were Drs. Charles E. Waits, Daniel C. Elkin, Cyrus W. Strickler, George F. Eubanks, Jr., F. Phinizy Calhoun, and Thomas C. Davison, all of whom were students of Dr. Campbell. Dr. Russell H. Oppenheimer, dean of the medical school, also spoke.

ILLINOIS

Personal.—Dr. Charles F. Harmon, Springfield, has been appointed chief of the division of social hygiene in the state department of public health, succeeding Dr. Ira Chester C. Copelan, who held the position about eleven years. Dr. Harmon's appointment became effective, October 1.

Typhoid Outbreak.—Eighteen cases of typhoid were recently reported to the state department of health, twelve of the cases occurring in two families. Eight members of one family were ill with the disease in Quincy and nine patients in Ridgway, four of whom were in one family, it is reported. The infection in Quincy was said to have been due to drinking polluted well water.

Milk-Borne Epidemic.—An outbreak of scarlet fever, involving at least nine cases, occurred in Alton and vicinity during the first two weeks of September. A raw milk supply from a local dairy was held responsible for the outbreak in Alton. The dairy was immediately closed. It was the first milk-borne epidemic in the state since October, 1929, when there was a milk-borne outbreak of typhoid in Carbondale.

Society News.—Dr. Evarts A. Graham, St. Louis, addressed the St. Clair County Medical Society, October 1, on "Lowering the Mortality After Operations on the Biliary Tract."——At a meeting sponsored by the Logan County Medical Society, September 24, more than 200 physicians of Central Illinois were addressed, among others, by Dr. Budd Clarke Corbus, Chicago, on "Newer Ideas in Immunology," and Dr. Harry Mortimer Richter, Chicago, "Gastric and Duodenal Ulcers," illustrated.——Dr. Arthur E. Hertzler, Kansas City, Mo., addressed the Vermilion County Medical Society, October 6, on goiter.——Dr. Gilbert H. Marquardt, Chicago, addressed a joint meeting of the Tri-County Medical Society and the Warren County Medical Society, October 15, on "Vascular Pains and Vascular Edema of the Legs—Their Diagnosis and Treatment"; Dr. Lowell D. Snorf, Chicago, spoke on "Treatment of Peptic Ulcer and Its Complications." Dr. Harold O. Jones, Chicago, presented a moving picture with sound on gynecology.——Dr. Ralph A. Kinsella, St. Louis, addressed the Adams County Medical Society, October 12, on "Treatment of Streptococcal Infections."——Dr. John de Jarnette Pemberton, Rochester, Minn., addressed the Sangamon County Medical Society, October 1, on "Problems in Surgery of the Thyroid Gland."

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[7] Burget, G. E., and Moore, P. H.: Is Levulose Converted to Dextrose in the Process of Absorption from the Small Intestine? Proc. Soc. Exper. Biol. & Med. **28**: 810 (May) 1931.

[8] Fleisher, M. S., and Jones, L.: Serum Sickness in Rabbits, Proc. Soc. Exper. Biol. & Med. **28**: 881 (June) 1931.

Chicago

Dr. Wilder Goes to Mayo Foundation.—Dr. Russell M. Wilder recently resigned as professor of medicine at the University of Chicago to join the staff of the Mayo Clinic and the faculty of the Mayo Foundation Graduate School of the University of Minnesota in a similar capacity. Dr. Wilder was formerly connected with the Mayo Foundation. He has been at the University of Chicago since 1929.

Dr. Carlson to Give Belfield Lecture.—The third annual William T. Belfield Lecture of the Chicago Urological Society will be delivered, October 29, by Dr. Anton J. Carlson, professor of physiology, University of Chicago, in the auditorium of the Medical and Dental Arts Building. His subject will be "Rejuvenation." Carl R. Moore, Ph.D., and Fred Conrad Koch, Ph.D., will open the discussion.

Society News.—Dr. William Bloom addressed a joint meeting of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine, October 23, on "Recent Studies on the Origin and Interrelationships of the Blood Cells."——Harry S. Sobotka, chief chemist to the Mount Sinai Hospital, New York, spoke on "Biochemistry of Bile Acids and Its Bearing on Physiological and Pathological Problems," October 13, at the Michael Reese Hospital.——The Chicago Neurological Society was addressed, October 22, by Dr. Joseph A. Luhan, among others, on "Some Postural Reflexes in Man."

INDIANA

Sanitation Program in Drought Area.—Under an appropriation made by the federal government for meeting health needs in the drought area, the U. S. Public Health Service and the state board of health are cooperating with local officials and health agencies in a number of counties in the drought area of the state. Cooperative budgets for public health work have been approved in Crawford, Harrison, Jefferson, Jennings, Martin, Morgan, Orange, Owen, Perry, Posey, Spencer and Sullivan counties. Immunization programs against diphtheria, typhoid and smallpox are being carried out in all these counties. A program of rural sanitation was inaugurated, September 1.

Society News.—The forty-sixth semiannual meeting of the Eleventh Indiana Councilor District Medical Association was addressed, October 15, by Drs. Andrew B. Rivers, Rochester, Minn., on "Cause of Hematemesis"; Louis H. Segar, Indianapolis, "Recent Advances in Pediatrics," and Lester B. Rhamy, Wabash, "Present Status of Treatment of Hay Fever."——The joint meeting of the Indianapolis Medical Society and the Seventh District Medical Society, Franklin, will be addressed, October 27, among others, by Dr. Irvin Abell, Louisville, on "Primary Multiple Malignant Growths."——Dr. Willis D. Gatch, Indianapolis, addressed the Elkhart County Medical Society, October 1, on "Diagnosis and Treatment of Intestinal Obstruction."

Five-Year Oral Hygiene Program.—The Indiana State Dental Association, at a recent conference of dentists, physicians and others, presented and discussed a five-year oral hygiene program which is to be carried out in cooperation with the state board of health through schools of the state. The following objectives of the program were listed: (1) a comprehensive educational program for educators, parents, teachers and students; (2) dental examination in all grades in the public schools coordinated with a systematic follow-up of such examination, and (3) instruction of all school pupils in the means of building and maintaining sound teeth. It was said that the association will endeavor to have established in the state board of health a division or department of dental hygiene with a qualified dentist as director; to secure the appointment of a competent dentist on the staff of every hospital; to have scientific information on how to build and maintain sound teeth included in textbooks; to have dental health work included in teacher training; to organize district and state oral hygiene conferences, and to develop leadership for a dental health program in each county of the state.

KENTUCKY

Personal.—Dr. Joseph W. Davis, Lexington, health director of Fayette County, has resigned to accept a similar position in Parkersburg, W. Va.——Dr. George M. Wells, formerly health officer of Trigg County, has been appointed director of the newly established health unit in Warren County.

Society News.—Dr. James E. Winter addressed the Jefferson County Medical Society, Louisville, October 5, on "Effect of Disease on Calcium and Magnesium Content in the Blood." A symposium on intravascular complications in surgery was presented at the meeting, October 19, with Drs. Joseph Garland Sherrill, Walter I. Hume and Louis Frank, all of Louisville, as the speakers.——Dr. Charles L. Seitz, Evansville, Ind., among others, addressed the Christian County Medical Society, Hopkinsville, September 22, on "Diagnosis and Treatment of Cancer of the Uterus."——Three Louisville physicians provided the program of the Harlan County Medical Society, September 26, as follows: Drs. Louis Wallace Frank, who spoke on acute conditions in the abdomen; Samuel A. Overstreet, roentgen diagnosis of gastro-intestinal lesions, and James R. Stites, cystoscopic treatment of urinary calculi.——Dr. Clement C. Fihe, Cincinnati, addressed the Licking Valley Medical Society, Flemingsburg, September 24, on diseases of the alimentary canal.

MARYLAND

Personal.—Dr. William D. Tillson has been appointed assistant health officer of Baltimore County. He was formerly connected with the Ohio State Department of Health as chief of the tuberculosis bureau.

Mayor Appoints Physicians.—The following physicians have been appointed by the mayor for the treatment of injured Baltimore city employees on a fee basis:

For the bureau of water supply: Drs. Frank S. Hundley, Karl J. Steinmueller and Frederick H. Vinup.
For the bureau of highways: Drs. Herbert C. Blake, Leonard A. Richardson and Walter W. White, Jr.
For the bureau of sewers: Drs. Harry J. Tankin, Maxwell L. Mazer and William Wallace Walker.
For the mechanical-electrical bureau: Drs. Charles F. Coughlin and Anton G. Rytina.
All other bureaus in the department of public works: Drs. Herman A. Voigt, Joseph Pokorny, William S. Smith and Anthony V. Buchness.

Society News.—The Baltimore City Medical Society was addressed, October 23, by Wilbur W. Swingle, Ph.D., and J. J. Pfiffner of Princeton University, Princeton, N. J., on "Studies on the Adrenal Cortical Hormone," and Drs. George A. Harrop, Jr., Albert Weinstein and Arthur A. Marlow, "Treatment of Addison's Disease with Adrenal Cortical Hormone." The society's meeting, October 9, was house officers' night.——Raymond A. Pearson, LL.D., president of the University of Maryland, Baltimore, among others, spoke before the Southern Maryland Medical Association, August 26, on the relationship the medical school should bear to the medical profession.——Dr. Harry M. Stein, Baltimore, addressed the Cumberland Valley Medical Society, September 24, on diabetes.——The semiannual meeting of the Medical and Chirurgical Faculty of Maryland was held, October 21, at the West Nottingham Academy in Cecil County; the scientific session was addressed by Drs. Charles Reid Edwards on "Conditioned Air, Some of the Indications for Its Use in Surgical Cases"; Emil R. Mayerberg, Wilmington, Del., "Otologic Observations of Importance to the General Practitioner," and William H. Welch, Baltimore, "Distinguished Physicians Who Have Graduated from West Nottingham Academy."

MASSACHUSETTS

Lectures at Harvard University.—Dr. John M. Birnie, Springfield, will deliver the George W. Gay Lectures on "Medical Ethics" at the Harvard University Medical School. Wednesday, November 4, Dr. Birnie's subject will be "Ethics for the Doctor," and Wednesday, November 18, "Independence for the Doctor." Dr. Gerald B. Webb, Colorado Springs, Colo., gave one of the lectures on "The Care of the Patient" at the medical school, October 21. The title of his address was "The Prescription of Literature." Dr. Stewart R. Roberts, Atlanta, Ga., will give the second lecture of the series, October 28, on "The Art and Human Nature."

Society News. — Dr. John Lovett Morse, Boston, will address the Massachusetts Dietetic Association, January 12, on "Food for the Infant and Young Child." The association will be addressed, March 8, by Dr. Reginald Fitz, Boston, on "The Changing Problem of Dietetics," and, April 12, by Dr. Herrmann L. Blumgart, Boston, on "Importance of Diet in the Treatment of Patients with Cardiovascular Disease."——A joint meeting of the Greater Boston Medical Society and the Beth Israel Hospital was addressed, October 6, by Drs. Abraham Myerson on "Intracranial Dynamics" and Sidney D. Kramer, "Present Status of Poliomyelitis."——Dr. Halbert G. Stetson, Greenfield, addressed a joint meeting of the Essex North, Middlesex North, East and Essex South district medical societies, October 14, on "What Your State Society Is Planning and Doing," and Dr. Clarence A. Bonner, Danvers, spoke on "Rôle of Psychiatry in the Practice of Medicine."

Dr. Cannon Honored. — Dr. Walter Bradford Cannon, George Higginson professor of physiology at Harvard University Medical School since 1906, was honored at a testimonial meeting, October 15, in celebration of his twenty-five years in that position. Dr. David L. Edsall, dean of the medical school, presided over an afternoon program at which Dr. Walter C. Alvarez, Rochester, Minn., spoke on "Influence of Dr. Cannon's Work upon Medical Thought and Progress," and Dr. William H. Howell of the Johns Hopkins School of Hygiene, Baltimore, "Development of Physiology During the Past Twenty-Five Years and Dr. Cannon's Influence upon It." President Abbott L. Lowell presided at a dinner in the evening when Dr. Graham Lusk, professor of physiology, Cornell University Medical School, New York, spoke on "The Life of a Professor." At this time a portrait of Dr. Cannon, from a photograph of which the accompanying illustration was made, was presented to the medical school. The committee in charge of the celebration consisted of Dr. Henry A. Christian, chairman, Dr. Harvey Cushing, Dr. Alexander Forbes, Alfred C. Redfield, Ph.D., and Dr. Cecil K. Drinker. Dr. Cannon graduated at Harvard University Medical School in 1900. He is a member of numerous scientific societies and his works include "A Laboratory Course in Physiology," "The Mechanical Factors of Digestion," and "Traumatic Shock." Dr. Cannon received the Distinguished Service Medal during the World War.

MISSISSIPPI

Forger Impersonates Physician. — Dr. James Milton Acker, Aberdeen, has reported that a man has been cashing checks in his name in several towns in Alabama and Florida. All checks have been drawn on the Monroe Banking and Trust Company of Aberdeen, for either $10 or $15. The first check reported to Dr. Acker was given to a drug firm in Tuscaloosa, Ala., which described the forger as about 50 years old, slightly *gray and weighing about 170 pounds.*

Society News. — The Issaquena-Sharkey-Warren Counties Medical Society was addressed, September 8, by Drs. John E. Quidor, on "Malaria Prevention"; Edley H. Jones, "Scope of Allergy"; William G. Weston, "Use of Diuretic Drugs in the Treatment of Advanced Cardiac Failures," and Nathan B. Lewis, Vicksburg, "Mucous Colitis." The society was addressed, October 13, among others, by Dr. John A. K. Birchett, Jr., Vicksburg, on "Meckel's Diverticulum—Its Significance and Complications."——The Eighth Councilor District Medical Society was addressed in Natchez, October 6, among others, by Drs. Philip L. Mull, University, on "Medical Education in Mississippi"; Isidore Cohn, New Orleans, "Surgical Significance of Splenomegaly," and Thomas B. Sellers, New Orleans, "Constitutional Symptoms of Gynecological Origin and Treatment of Causative Conditions."——Dr. Jacques H. Baumhauer, Mobile, Ala., addressed the Jackson County Medical Society, September 7, on "Food Allergy in Children."——The Central Medical Society was addressed, September 15, by Drs. Marvin Brister Ware, New Orleans, on "Surgery in Diabetes"; Levi B. McCarty, "Complications of Malaria"; Thomas E. Wilson, Jr., Jackson, "Angina Pectoris," and Oscar G. Eubanks, Crystal Springs, "Handling of Cardiac Cases in Private Practice."——The Northeast Mississippi Thirteen County Medical Society was addressed at Columbus, September 15, among others, by Dr. De Witt Hamrick, Corinth, on "Function of the Faucial Tonsil," and Dr. Samuel P. Wainwright, Birmingham, "Tuberculosis of Infancy and Childhood with Reference to Early Diagnosis and Tuberculin Reaction."——Dr. Kutcher T. Klein, among others, addressed the East Mississippi Medical Society at Meridian, October 8, on barbital preparations, particularly sodium amytal.

MONTANA

State Campaign Against Cancer.—Dr. John H. Garberson, Miles City, president of the Montana State Medical Society, recently appointed a committee of fifteen members for the purpose of formulating plans for an active campaign against cancer in the state. Dr. Louis H. Fligman, Helena, state director for the American Society for the Control of Cancer, has been appointed chairman of the committee. Other members are Drs. Ernest D. Hitchcock, Great Falls; Wyman W. Andrus, Miles City; John A. Evert, Glendive; Charles C. Wallin, Lewistown; Fayette B. Ross, Kalispell; William W. Taylor, Whitefish; James F. Blair, Bozeman; Duncan S. MacKenzie, Havre; Thomas L. Hawkins, Helena; John P. Ritchey, Missoula; Byron L. Pampel, Livingston; George McGrath, Hamilton; Herbert D. Kistler, Butte; Mark D. Hoyt, Glasgow, and Charles F. Watkins, Billings.

NEW JERSEY

Health at Trenton. — Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended October 10, indicate that the highest mortality rate (18.1) appears for Trenton and the rate for the group of cities as a whole, 10.3. The death rate for Trenton for the corresponding period last year was 20.7 and for the group of cities, 10.9. The annual rate for eighty-two cities was 12 for the forty-one weeks of 1931 and the same rate appears for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

NEW YORK

Society News.—Drs. James N. Vander Veer and Albert Pfeiffer, Albany, addressed the Medical Society of the County of Rockland at Letchworth Village, Thiells, September 23, on treatment of venereal disease, and Dr. George W. Henry, White Plains, "Practical Application of Psychiatry to General Medical Practice."——Drs. Robert A. Cooke and William L. Sneed, New York, addressed the Medical Society of the County of Nassau, September 29, on "Diagnosis and Management of Allergic Conditions" and "After-Care of Poliomyelitis," respectively.——The western district health office has moved into new quarters in the State Office Building, Niagara Square, Buffalo. Dr. Archibald S. Dean is health officer of the district, which comprises Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming counties.

New York City

Diploma and Licenses Lost.—Dr. John C. Kindred has reported that his diploma from the Medical College of Virginia, his license to practice in New York and his certificate of registration in Queens County have been lost. The three certificates were taken to a New York department store for framing and after an interval the store notified Dr. Kindred they had been lost.

Awards for Orthopedic Research. — The Hospital for Joint Diseases announces that the Henry W. Frauenthal Travel Scholarship has been awarded to Dr. Sidney A. Bernstein and the two Brown Orthopedic Research Fellowships have been awarded to Drs. Ernst Freund, Vienna, Austria, and Sheldon A. Jacobson. Each of the awards amounts to $2,400 a year. Dr. Bernstein will spend six months in American clinics and six months in Europe, while Dr. Freund and Dr. Jacobson will engage in clinical and laboratory research at the Hospital for Joint Diseases.

Guide to Welfare Agencies.—The Welfare Council has issued a leaflet containing information on the welfare agencies of New York for the guidance of persons to whom the unfortunate appeal for assistance. The principal family welfare organizations for each borough are listed with telephone numbers and information as to their special fields. The guide also lists twenty specialized information bureaus equipped to put inquirers in touch with particular fields of service, as care for the aged, care for children, help for the handicapped, general and specialized health information, recreation and legal aid.

Hospital News.—Nonmunicipal hospitals in New York will face a deficit of $12,000,000 by January 1, the United Hospital Fund recently announced. This will be $3,000,000 more than the deficit for 1930. A petition for $1,500,000 from the city budget for private hospitals caring for city patients is now before the board of estimate, it was said.——Dr. I. Snapper of the University of Amsterdam delivered an address on "Practical Value and Theoretical Explanation of Erythrocyte Sedimentation," at Mount Sinai Hospital, October 9.——The new six-story dispensary of St. Vincent's Hospital was dedicated, October 5.

PENNSYLVANIA

Joint Society Meeting.—The fifteenth annual joint meeting of the Lehigh, Northampton and Bucks county medical societies and the Lehigh Valley Homeopathic Medical Society was held, October 13, at the Allentown State Hospital. A symposium on psychoneurosis was held, after an inspection trip through the hospital, with the following physicians as the participants: Drs. Harry F. Hoffman, Max Rossman, Lucy Etta B. Vaughn, Edgar M. Blew and Henry I. Klopp.

Graduate Lectures.—The Easton Hospital began its second annual series of graduate lectures, offered to physicians of Northampton and surrounding counties, October 21, with the following speakers: Drs. Ralph M. Tyson, Philadelphia, on "The New-Born Child"; William W. G. Maclachlan, Pittsburgh, "Observations on Pneumonia"; Harold L. Foss, Danville, "Goiter and Its Surgical Treatment," and Howard R. Hartman, Rochester, Minn., "Gastric Lesions and Gastric Hemorrhage."

Society News.—Dr. John J. Moorhead, New York, addressed the Westmoreland County Medical Society, Greensburg, October 13, on "The Practice of Traumatic Surgery."——Mr. Lester H. Perry, Pittsburgh, has been appointed executive secretary of the Allegheny County Medical Society.——Dr. William H. Mayer, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, October 15, on "Fundamentals of the Mental Hygiene Problem."——Dr. James G. Koshland addressed the Mifflin County Medical Society, Lewistown, October 1, on mastoiditis.——Drs. Grover C. Weil, Harold G. Kuehner and John Henry, all of Pittsburgh, addressed the Erie County Medical Society, October 6, on the maggot treatment of osteomyelitis.

Philadelphia

Society News.—Drs. Louis H. Clerf and Henry K. Pancoast, among others, addressed the Philadelphia Pediatric Society, October 17, on "Bronchiectasis in Children: Bronchoscopic Observations" and "Modern Roentgenological Interpretations of the Thymus Syndrome," respectively.——The annual postgraduate seminars given on Friday afternoons under the auspices of the Philadelphia County Medical Society will begin, November 13, with a lecture by Dr. Moses Behrend on "Cardiac and Metabolic Changes Accompanying Disease of the Bile Passageways, with Special Reference to Jaundice."——Dr. Robert L. Dickinson, New York, will address the Philadelphia County Medical Society, October 28, on "American and Foreign Experience with Conception Control."

SOUTH DAKOTA

District Medical Meetings.—The following addresses, among others, have been presented at the fall meetings of district medical societies:

Kingsbury, proposed medical legislation, Dr. Willard A. Bates, Aberdeen.
Black Hills, iopax in the diagnosis of kidney tumor, Dr. Anton J. Janis, Rapid City; rôle of surgery in hydronephrosis, Dr. Frederick W. Minty, Rapid City.
Huron, bronchoscopy and esophagoscopy in diseases of the chest, Dr. Thomas R. Gittins, Sioux City, Iowa; compression fracture of the spine, Dr. Archibald F. O'Donoghue, Sioux City.
Sioux Falls, bone tumors, Dr. Anatole Kolodny, Sioux City.
Aberdeen, modern procedures in treatment of prostatic disease, Dr. Gilbert J. Thomas, Minneapolis.
Yankton, tuberculosis in human beings and animals, Drs. Daniel C. Lochead, Rochester, Minn., August E. Bostrom, Waubay, and T. W. Munce, D.V.M., Sioux City.

Society News.—Drs. Faris F. Pfister and Winfred L. Reid, Webster, addressed the Whetstone Valley Medical Society, Webster, August 27, on "Diabetes and the General Practitioner" and "Thyroid Diseases," respectively.——Drs. Andrew J. Paulson, Watertown, and Martin Nordland, Minneapolis, addressed the Watertown District Medical Society at its August meeting on abdominal injuries and treatment of goiter, respectively.——Dr. Stanley R. Maxeiner, Minneapolis, addressed the Sioux Falls Medical Society, Sioux Falls, September 15, on local anesthesia.——Drs. August E. Bostrom, Waubay, and Floyd Coslett, Sanator, among others, addressed the South Dakota Public Health Association, Pierre, October 21-23, on "Tuberculosis as Recorded in the State Department of Health" and "Tuberculosis from a Sanatorium Standpoint," respectively.

TENNESSEE

Personal.—Dr. James A. Crabtree, director of the division of preventable diseases in the state department of health, Nashville, has been appointed assistant professor of epidemiology at Johns Hopkins University School of Medicine, Baltimore, it is reported.

Society News.—Drs. Frederick E. Hasty and Hollis E. Johnson, Nashville, discussed "Paranasal Sinus Diseases and Their Relation to Chest Conditions," and Dr. Horton R. Casparis, Nashville, "Sinus Conditions in Childhood," before the Chattanooga and Hamilton County Medical Association, October 8.——Dr. Lloyd E. Dyer, Greeneville, was elected president of the East Tennessee Medical Association, October 2.——Dr. William F. Copeland, Cornersville, addressed the Giles County Medical Society, Pulaski, September 23, on treatment of angina pectoris.——Drs. Erbie B. Clark, Sparta, and Harlan H. Taylor, Cookeville, presented before the Nine County Medical Society, Monterey, October 1, papers on "Diagnosis of Gallbladder Disease" and "The Infected Cervix," respectively.——Dr. Carl S. McMurray addressed the Nashville Academy of Medicine, October 6, on "Intraperitoneal Hemorrhage of Pelvic Origin."

WEST VIRGINIA

Personal.—Dr. Oscar B. Biern, Huntington, was elected president of the Central Tri-State Medical Society, meeting in Portsmouth, Ohio, September 17.——Dr. Orra F. Covert, Moundsville, was recently elected president of the West Virginia Tuberculosis and Health Association.

Society News.—Dr. Charles Goodman, New York, addressed the Ohio County Medical Society, October 2, on acute conditions in the abdomen.——Dr. Arthur P. Butt, Elkins, addressed the Eastern Panhandle Medical Society, Charles Town, September 9, on "The Physician, the Hospital and Their Relationship to Each Other."——Dr. Howard T. Phillips, Wheeling, presented a paper on lesions of the skin before the Tyler-Wetzel Bi-County Medical Society, New Martinsville, September 9.

GENERAL

Society News.—Dr. J. Bentley Squier, New York, was made president-elect of the American College of Surgeons at the annual meeting in New York, October 15. Dr. Allen B. Kanavel, Chicago, was installed as president and Drs. Charles Gordon Heyd, New York, and W. Edward Gallie, Toronto, were elected vice presidents.

International College of Anesthetists.—At the tenth annual meeting of the Associated Anesthetists of the United States and Canada in New York, October 12-16, it was stated that an international college of anesthetists is being organized by the board of governors of the International Anesthetic Research Society. The purpose of the college will be to standardize anesthetics and relief of pain in hospitals.

Four Weeks of Automobile Fatalities.—The U. S. Department of Commerce announced that, during the four weeks ended October 3, eighty-two large cities in the United States reported 718 deaths from automobile accidents, as compared with 753 deaths during the four weeks ended Oct. 4, 1930. Most of these deaths were the result of accidents that occurred outside the city limits. For the fifty-two week periods ended Oct. 3, 1931, and Oct. 4, 1930, the totals for the eighty-two cities were, respectively, 9,064 and 8,826, which indicate a recent rate of 25.5 per hundred thousand of population as against an earlier rate of 25.4. Six cities reported no deaths from automobile accidents for the last four weeks.

Examination in Obstetrics and Gynecology.—The next examination of the American Board of Obstetrics and Gynecology for group three candidates will be held simultaneously in nineteen cities throughout the country, October 31. Those interested in obtaining the certificate of the board should communicate with Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh, Pa. There are at present about 260 diplomates of the American Board of Obstetrics and Gynecology, which is an examining board created by the joint action of the Section on Obstetrics, Gynecology and Abdominal Surgery of the

American Medical Association, the American Gynecological Society and the American Association of Obstetrics, Gynecologists and Abdominal Surgeons.

Association of Obstetricians and Gynecologists.—The third annual meeting of the Central Association of Obstetricians and Gynecologists will be held, October 29-30, at the Hotel Shoreland, Chicago, under the presidency of Dr. Fred J. Taussig, St. Louis. The principal address will be delivered by Carl G. Hartman, Ph.D., of the Carnegie Institute of Embryology on "The Time of Ovulation in the Menstrual Cycle of Man and Monkey." Other speakers will include Drs. Daniel H. Bessesen, Minneapolis, on "Development of Antiseptic Delivery"; Robert D. Mussey, Rochester, Minn., "Secondary Anemia in Pregnancy"; William F. Mengert, Iowa City, "Changes in the Urinary Tract Following Delivery," and William T. Pride, Memphis, Tenn., "X-Ray Study of 300 Primiparous Patients." At a meeting of the association with the Chicago Medical Society, Wednesday, the work of the White House Conference will be discussed. The association will be the dinner guests of the Chicago Gynecological Society, Friday evening.

Government Services

Term at Naval Medical School Is Extended

The term of the Naval Medical School has been lengthened to eight months, with only one class a year, the *Naval Medical Bulletin* announces. The increasing scope of the curriculum and the fact that it is difficult to find a sufficient number of medical officers available to form a new class at the beginning of the second term were given as the reasons for the change. It was said that work in naval hospitals and other units increases during January and February to such an extent that medical officers cannot be released to attend the school.

Change of Station in the Navy

Lieut. Comdr. Walter J. Pennell from Public Health Service of Haiti to naval hospital, Norfolk, Va.; Lieut. Comdr. Franklin F. Lone from Public Health Service of Haiti to naval hospital, Portsmouth, N. H.; Lieut. Francis H. Webster from Public Health Service of Haiti to naval hospital, Newport, R. I.; Capt. Thurlow W. Reed from the Receiving Ship, New York, to the navy yard, Philadelphia; Lieut. Comdr. Robert P. Parsons, from the naval hospital, New York, to the U. S. S. *Relief;* Lieut. Clifton A. Young, from the naval hospital, Washington, D. C., to Nicaraguan National Guard Detachment; Lieut. Comdr. Horace W. Boone, from Guardia Nacional, Nicaragua, to treatment at the naval hospital, San Diego; Lieut. Comdr. Grover C. Wilson, from the U. S. S. *Langley* to the Norfolk Naval Hospital, Portsmouth, Va.; Lieut. Frederick R. Haselton, from the U. S. S. *Lexington* to the naval air station, Pensacola, Fla.; Lieut. Frank A. Hughes, from the naval station, Guantanamo Bay, Cuba, to the naval air station, Pensacola; Lieut. John F. Luten, from the naval hospital, Mare Island, Calif., to the naval station, Guantanamo Bay.

Army School of Nursing Suspended

The Army School of Nursing, established in 1918 for the training of nurses as a war measure, was suspended, August 12, after a study made by Surg. Gen. Robert U. Patterson had been reviewed by the general staff and approved by the secretary of war. The work of the school will be continued to the end of the current school year to enable the class of 1932 to graduate, but new students will not be admitted. Students admitted in October, 1930, and January, 1931, have nearly all been transferred to civilian schools of nursing. According to a statement issued, October 10, by the surgeon general, the prospective expenditures necessary to replace the temporary housing facilities would have run into large figures. It was further pointed out that the maintenance of a school for professional education in subjects widely taught in civil life is not in keeping with the policy of the war department. The schools maintained by the army are for the purpose of providing instruction in military matters which cannot be obtained in any other place. Finally, it was said that the Army School of Nursing was not an important source of candidates for the Army Nurse Corps. Out of about 880 graduates of the school during its existence, 26 per cent have entered the service for various periods, but at present graduates of the school constitute only about 6.5 per cent of the strength of the corps.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 26, 1931.

Centenary Meeting of Association for Advancement of Science

At the centenary meeting of the British Association for the Advancement of Science held in London, some of the papers read were of especial interest to physicians. The president, General J. C. Smuts, delivered a philosophical address on the "Scientific World Picture of Today." Dealing with biology, he pointed out that, while the whole universe appeared to be dissipating its energy and running down, an exception must be made for life on this planet, where dissipated energy was being taken up and organized into life structures. The recently discovered "quantum" of physics offers a suggestive analogy to life. It follows the all-or-nothing law and behaves as an indivisible whole; so does life. A part of the quantum is not something less than a quantum; it is nothing, or sheer nonentity; the same holds for life. Life is not an entity, physical or other. It is a type of organization. Its nature lies in its constitution more than in its parts. The part in the whole is no longer the same as the part in isolation. Physics and biology are beginning to look not so utterly unlike each other. The gulf between the inorganic and the vital is being bridged. The correct view of life has been obscured by the mechanistic ideas from the crude materialism of the nineteenth century. Up to a point, mechanism has been useful as a first approximation, but if in physics it has lost its savor certainly it is out of place in biology. The partial truth of mechanism is always subtended by the deeper truth of organicity. So far from biology being forced into a physical mold, physics will look to biology and even to psychology for hints and clues. Matter is fundamentally a configuration or organization of space-time, and life is a principle of organization whereby space-time patterns are arranged into organic unities. The next step is to show that mind is even a more potent embodiment of the organizing whole-making principle, and that this embodiment has found expression in a rising series, beginning at the lowest levels of life and ending with conscious mind.

VITAMINS

In the Section of Chemistry, the president, Sir F. Gowland Hopkins, said that all attempts at the isolation and determination of the constitution of vitamins was disappointing. For an adequate diet a few milligrams per kilogram of proteins, energy-forming substances and mineral salts were required of certain other substances (vitamins), and in the case of individual substances small fractions of a milligram per kilogram of the total food consumed. There were at least seven or eight such substances. Some were associated with animal fats; other were more widely distributed. To this day vitamin A was spoken of as fat-soluble and vitamin B as water-soluble, but it was now known that the preparations of these as originally used contained more than one active substance. Those preparations intended to supply vitamin A contained also vitamin D, and those of B had considerable complexity. The former statement was proved by oxygenating animal fats. A was more easily oxydized than D, and when preparations were administered after this treatment certain symptoms of deficiency remained but others were no longer seen. The physiologist's next task was to find out how the potent influence of the vitamins was exercised in the human body and how such minute amounts of material could produce such profound effects. When the synthetic chemist knew all about the constitution of these substances, it was just possible that he might improve on nature and get from the synthetic products still more startling results.

INTELLIGENCE AND FERTILITY

In the Section of Psychology, Dr. Sheperd Dawson said that it was possible that abnormal intellect, either in excess or in defect, might go with lessened fertility. From investigations made in Glasgow, and other available information, one was tempted to conclude, however, that the less intelligent elements of the population were increasing at a greater rate than the more intelligent and that in time they might vastly outnumber them. It was possible that some of the schemes now put into operation to promote welfare might be doing something to preserve and multiply the dull and so accentuate social problems.

OXYGEN IN MOUNTAIN CLIMBING

In the Section of Physiology, the value of oxygen in mountain climbing was discussed by a physiologist and two climbers, of whom one was a physician. Professor Barcroft made investigations in a steel chamber wherein the barometric pressure was reduced to that at the top of Everest (11 inches of mercury). In the chamber, the exertions necessary for climbing 1,000 feet an hour were made by stepping on and off a block of wood 13 inches high. Although an ordinary person would faint in air at such low pressure, it was found that " the climb" could be done just as easily as outside at ordinary atmospheric pressure. Given the necessary oxygen, the drop of barometric pressure had no effect. Against this advantage there would be in mountain climbing such difficulties as the weight of the apparatus and the effect of frost on the valves and tubes.

Mr. E. N. Odell of the Everest 1924 expedition said that the big attacks on the summit of Everest in 1922 were made by Mallory and others entirely unequipped with oxygen; they reached 29,000 feet. The 1924 expedition was equipped with oxygen, which was in his charge. The attempt on the summit was made from the sixth camp at 27,000 feet and they were all of open mind as to the utility of oxygen. Mallory and Somervell in 1922 thought that the main factor was acclimatization and not oxygen. Finch maintained that, using oxygen all the way from 20,000 feet, time was saved and there was more probability of reaching the top. Others held that with such speed of climbing there was grave danger of collapse in the event of failure of the apparatus. In the 1924 expedition, they found they did not get the benefit others previously had obtained; 28,000 feet was reached entirely without oxygen. The full weight of three cylinders was 35 pounds, a considerable weight at 27,000 feet. The conclusion after the expedition was that in any future expedition the good of oxygen would be for the last few hundred feet. A subsequent trial in North Wales confirmed the view that the value of oxygen was in a final pick-me-up, for which 15 cubic feet would suffice.

Dr. Raymond Greene, physician of the Kamet expedition, insisted on the utility of oxygen in high climbing. Finch found that above 21,000 feet it made light a strenuous day's work. At 25,500 feet, Finch and Bruce passed the night in numbing cold threatening disaster till they tried the effect of oxygen. In a few minutes it produced a tingling sensation of returning warmth. Oxygen they considered saved their lives that night, and next day they climbed 1,800 feet at 900 feet an hour against only 330 at lower altitudes. Lack of oxygen produced greatly accelerated heart action and rendered frost bite more likely. The solution of the problem was slow climbing to a point at which the summit could be rushed with the aid of oxygen.

On the motion of the president, Dr. Dale, it was agreed to appoint a committee to go into the provision of suitable oxygen apparatus which mountaineers would think worthy of trial.

THE MECHANISM OF EVOLUTION

Prof. E. B. Poulton, president of the Section of Zoology, said that the first meeting of the association he attended, in 1881, was the last meeting at which opposition was offered to evolution as apart from its causes. Thereafter the battles in the section had been over Lamarckism and natural selection and their factors, especially heredity. Evolution itself had been generally accepted. None of the theories of those who would limit the power of natural selection were valid. What other hypothesis would explain mimicry? Some naturalists believe that the resemblances have no biologic significance. Such chance likenesses in patterns of butterflies have been shown by Dixey to be relatively few and to exist only where the patterns are simple. Professor Study of Bonn showed the impossibility of explaining mimicry by chance resemblance. It had been suggested that mimetic resemblances were due to model, and mimicry independently passing through the same stage of evolution. But, as pointed out by Lord Rayleigh, this would not explain the resemblance of insects to bark or twigs or leaves.

In the discussion, the veteran American paleontologist Prof. H. F. Osborn said that science was at a loss more than ever to explain the causes of evolution. He rejected natural selection, the origin of adaptations from fortuitous mutations, but held that the direct influence of the environment on the germ plasm —one of Darwin's own beliefs—was proved, and that paleontology had proved a number of laws by which evolution was controlled. Dr. Broom, the distinguished South African paleontologist, was not in full agreement with Professor Osborn's interpretation. The discussion showed that there was no general agreement as to the mechanism of evolution.

Gas Warfare Anticipated: Faraday's Views

Every discovery seems to have been anticipated in some form and the fact overlooked until unearthed by some student of the past. For the approaching Faraday centenary celebrations an exhibition is to be opened at the British Museum. A copy of the *Philosophical Transactions of the Royal Society* published in 1832 will be shown containing the paper in which Faraday first communicated his great discoveries on the relation of electricity and magnetism. But the most interesting relic to be exhibited is a confidential report from Faraday on the "secret war plan" of Lord Dundonald's for the capture of Cronstadt, submitted to the admiralty and dismissed as "infallible, resistless but inhuman." One suggestion was a concealing smoke screen emanating from iron vessels containing "combustible materials," such as bituminous coal. The other was the introduction of poison gas by means of sulphur vessels, "the fumes from which will drive away artillery men or stupefy them." Faraday reported that "dense smoke will hide objects and burning sulphur will yield fumes that are intolerable and able to render men involved in them incapable of action or even kill them." But he adds that if the project were known it would not be difficult for the attacked party to provide respirators which "would enable the men in a very great degree or even altogether to resist the temporary invasion of an atmosphere such as that described."

The Faraday Centenary

The centenary of Michael Faraday's discovery of electromagnetic induction, on which is founded the whole fabric of electrical engineering and the use of electricity in medicine, has been celebrated in London. The government, foreign and British scientists and electrical engineers, including Marconi, united in paying tribute to "the prince of experimenters." Sir Arthur Schuster thus sums up: "Of all men who have spent their lives in the search for experimental discoveries, no one has ever approached Michael Faraday in the number, variety or importance of the new facts disclosed by his labors." The German scientist Prof. P. Zeeman, who took part in the celebrations, placed in order of importance Faraday's discoveries of electromagnetic induction, of the chemical decomposition of a liquid by an electric current, and the magnetic rotation of the plane of polarization of light. Faraday was no mathematician and it remained for the genius of Clerk Maxwell to give mathematical expression to his discoveries, but in all his work he was guided by a profound faith in the unity of natural phenomena and especially by the fact that effects in one region are paralleled by similar ones in some other. In chemistry his work is fundamental. He discovered the two main quantitative laws underlying electrolysis—that the amount of chemical decomposition is proportional to the quantity of electricity employed (i. e., strength of electric current multiplied by time), and that the amounts of different substances set free by the same quantity of electricity are proportional to their chemical combining weights. He thus established a close relation between electricity and chemical combination. Many years afterward, Helmholtz pointed out that Faraday's laws of electrolysis indicated the existence of "atoms" of electricity. Thus was foreshadowed the fundamental discovery of the electron by J. J. Thomson at the close of the nineteenth century. The terms electrode, anode, kathode, ion, anion, cation, electrolyte and electrolysis were introduced by Faraday and are still used with the significance he gave them.

A Faraday centenary exhibition was opened at the Albert Hall by the president of the British Association, at which Dr. Frank B. Jewett, president of the Bell Telephone Laboratories, speaking by relayed message from Boston, delivered greetings of American scientific societies. The exhibition instructively displays in the center the actual apparatus—now looking so primitive—with which Faraday worked, and around it all the latest applications of electricity to chemistry, engineering, and other fields.

PARIS

(From Our Regular Correspondent)

Sept. 16, 1931.

International Congress on Medicinal Plants

The fourth Congrès international des plantes médicinales et à essences was held at Paris in the quarters of the Faculté de pharmacie. A great number of widely different questions were discussed; among others, the causes of the activity of medicinal plants according to exterior conditions, climate, altitude, cultivation; the divergencies in different species between the toxicity and the content in pharmacodynamic active principles, and, finally, the reasons for the abandonment by physicians of the therapeutic use of numbers of medicinal plants and their galenic derivatives. Among others, papers were read by Dr. Walter Hacht of Vienna on "Essais bioclimatiques sur les plantes médicinales"; Dr. Lajos Szahlender on "Le dosage de la rancidité des graines oléagineuses"; Dr. Bosheert on fertilizers for the cultivation of different qualities of digitalis; Professor Dietzel on the formation and the biologic significance of alkaloids; Professor Muszinski on the state of culture of medicinal plants in Poland, and the attempts at acclimatization of the soy bean at Vilna; Prof. Emile Perrot on the production of medicinal plants in France and in northern Africa; Dr. Strauss on the cultivation of peppermint and the production in Europe of the essence of peppermint. The members of the congress visited, during their stay in Paris, gardens of medicinal plants at Milly and Etréchy. Finally, they took up the unification of commercial terms for medicinal plants and plants furnishing essences (international nomenclature); the creation of an international codex of vegetable drugs, and the fixation of the prices of certain drugs, taking account of their activity or of their content in active principles. An exposition of medicinal plants grown in France and in the French colonies, held at the Faculté de pharmacie, comprised more than 800 different specimens. The opening of the exhibit took place under the chairmanship of Mr. André Tardieu and Mr. Louis Rollin, minister of commerce. The idea of an international organization that would distribute, according to the climates of the producing countries, the "simples" most used in pharmacy was discussed at some length. France, which, with its colonies, can produce a large number of different plants, imports every year considerable quantities of medicinal plants. During 1930, nearly a million kilograms was imported. Unquestionably a large number of these plants can be grown in our climate, and it would be to the interest of France to take measures to intensify their production. That would promote the utilization of arid areas, which are perfectly well adapted for a number of medicinal plants.

The International Federation Against Tuberculosis

The annual meeting of the council of the Union internationale contre la tuberculose, the president of which is Professor Frölich of Norway, was held in Paris, at the headquarters of the "union," 2 avenue Vélasquez. Seventeen countries sent delegates. The next meeting of the Union internationale will be held at The Hague, Sept. 6-9, 1932. The following topics, selected from a list of subjects proposed by the countries belonging to the "union," will be on the program: "Relations Between Allergy and Immunity," the speaker to be designated later; "Gold Therapy," to be presented by Professor Sayé of Barcelona, and "Postsanatorial Aid," by Dr. B. H. Vos of Hellendoorn (Netherlands). Following the precedent adopted at the conference in Oslo, ten collaborators will be designated in different countries for each topic, in addition to the principal speaker. The scientific session was held in the new "tuberculosis laboratories" of the Institut Pasteur, which the members of the council inspected, being conducted by Professor Calmette. The session was devoted to the paper of Dr. Soper (United States) on "A Standard Plan for the Antituberculosis Crusade." In the absence of Dr. Soper, the paper was presented by Professor Opie (United States). Following Dr. Soper's paper, Professor Valtis of Greece explained the stages in the antituberculosis crusade in his country. These two papers were followed by a discussion in which Prof. Léon Bernard, general secretary of the "union," Prof. Knud Faber of Denmark, Colonel Rudzki of Poland, and others, participated.

The Meeting of the Confederation of Medical Syndicates

The harmful effects of the social insurance law has been attenuated by the creation of control committees to adjudicate differences that arise between the three parties concerned: the insured, the physicians and the administrators of the health insurance societies. The physicians are unfortunately in the minority. But, in a paper read at the last meeting of the Confédération des syndicats médicaux de France, Professor Vanverts of Lille made the reassuring statement that the physicians designated to serve on the control committees assume a preponderant rôle because of the scrupulous honesty they displayed in the performance of their duties. They go to any limit to defend their colleagues when they are accused unjustly but they are pitiless in condemning those who have been convicted of dishonest practices. Fortunately, of such there are few. In all the cases that have arisen, the physicians who are members of the control committees have been the first to demand severe and exemplary penalties in order to uphold the honor of the profession. The result has been that the number of physicians convicted of dishonest practices has diminished until the number is negligible; for physicians inclined to be dishonest are certain they will not be defended by their colleagues; hence the confidence in the physicians serving on the control committees has greatly increased. At the same meeting of the Confédération several important questions were brought up. The Commission du droit syndical has revised the by-law of the confederation that deals with medical specialists and has set up a system of compulsory arbitration. The "commission" took action also with regard to various matters pertaining to antituberculosis and antivenereal dispensaries and with reference to consultation centers for expectant mothers and mothers with nurslings. The question of physicians at the frontiers was taken up and a resolution passed concerning the practice of medicine among civilians by army physicians. Since army physicians owe all their time to the army and are accorded special privileges (use of rooms, apparatus, instruments, exemption from license-tax), they should not compete in a dishonest manner with their civilian colleagues. The confederation has taken steps to obtain a governmental decision formally prohibiting army physicians national Medical Association culminated chiefly in the principle that the community at large needs social insurance for its financially weaker strata; but, as the pillar of the institution of social insurance is the medical profession, adequate influence in the management of its affairs has to be insured for the physicians. In the insurance work, physicians should keep their moral and financial independence, and as the basis and principal factor of healing is the trust of patients in their physicians, the carrying through of the principle of free choice of physicians everywhere is implicitly necessary.

The congress thoroughly debated the question of village medical service. The discussion of this theme was necessitated by the circumstance that it has been debated this year also by the European conference acting under the League of Nations. The congress discussed some less important subjects and finally resolved that the seat of next year's congress be Geneva. Dr. Schäeftgen, the representative of the medical profession of the grand duchy of Luxembourg, was designated as president for the future congress.

The Hungarian National Medical Association did everything in its power to entertain the delegates. The city of Budapest gave a banquet at Janos Mountain. Next day, on behalf of the ministry of public welfare, Dr. Scholtz, state secretary, gave a lunch at the Hotel Hungaria, and the same evening, a dinner was given on Margaret Island. After the congress, the guests were taken to Lake Balaton, the Hungarian sea, where they were the guests of the city of Budapest; next day by steamboat they visited the fish-biologic institute at Tihany.

Curtailment of Publication of Medical Papers

The economic policy of the government aims to prevent the exporting of money by the compulsory reduction of imports. As the domestic paper factories are unable to meet the demand, four fifths of the paper necessary for the press has been imported. A new order, issued by the ministry of finance, requires that newspapers and either trade or scientific periodicals reduce their size to about half. The order is a great hindrance to the medical journals, which have on hand many manuscripts. The press association expects to make representations to the government to revoke the order as regards literary and scientific periodicals, for which this order amounts to a catastrophe. If the government will not revoke the order, some periodicals will have to stop publication.

BELGIUM

(From Our Regular Correspondent)

Sept. 8, 1931.

International Bibliographic Bureau of Military Medicine

The Office international de documentation de médecine militaire, created last year at Liége, held recently at Brussels the first series of bibliographic conferences. More than 145 registrations from fourteen countries show the interest aroused by the program. General Demolder, inspector general of the medical corps of the Belgian army, welcomed, in the name of the officers of the corps, the foreign colleagues and thanked them for the honor shown Belgium by the choice of Liége for the headquarters office.

General Spire of the French army medical corps delivered an address in which he set forth the principles of sanitary tactics.

Colonel Felton of the United States Army Medical Corps discussed eye injuries on the firing line. Persons whose vision is impaired by trauma are, indeed, wounded men of a special type, both from the standpoint of their psychologic reactions and from the special treatment that they require. Such wounded men should be quickly evacuated to an ophthalmologic center where they will secure suitable treatment.

Colonel Vivie read an address, prepared by Colonel Gravellat of the French army medical corps, on "The Hygiene of the European Soldier in the Colonies." After calling attention to the sanitary disasters that commonly befell colonial expeditions in the early day, the speaker described present conditions as affecting recruitment, transportation and life in general in tropical climates.

Colonel Thomann, pharmacist in the Swiss army, presented a film devoted to the organization and the tactical use of mountain sanitary companies. These sanitary companies present a number of peculiar features that are the consequence of the conditions of their functioning in the mountains. This formation reenforces the regular formations, or it may evacuate them or hospitalize them. While diagrams represented graphically the organization of the sanitary company, the film showed the functioning in the marvelous setting of the mountain region. An interesting informal discussion took place between the speaker and some of his hearers on the subject of the practicability of the upright litter (patient seated), the utilization of pack mules, and the recruiting of stretcher carriers.

Major Georgevich of Yugoslavia presented a study on the new ideas concerning the virus of tuberculosis, and their applications to prophylaxis in the army. It was a comprehensive research, which gave a complete history of the question and took up in detail the present-day conceptions. The speaker then considered the applications of these conceptions in the domain of military hygiene.

Lieutenant General Demolder presented the results of the investigations of the international agreement for the improvement of the lot of the wounded and the sick of armies in the field. The speaker told of the many difficulties in the elaboration of the new regulations. The principles of the convention of 1906 are retained but are explained more in detail wherever, in practice, it was found that there were difficulties of interpretation, and are given more completely wherever omissions were observed. Thus, new provisions were introduced concerning military aviation. Likewise, the protection of the Red Cross emblem was strengthened. He called attention also to article 30, according to the terms of which, on the demand of a belligerent and according to the method to be decided on by the parties interested, an inquiry must be opened with regard to any alleged violation.

Colonel Schickelé of the French army medical corps, who discussed the problem of sanitary evacuation, reached the following conclusions: Modern warfare complicates the problem of sanitary evacuation, but fortunately the technic of transportation improves the means of action. One can therefore hope for a satisfactory solution. For that purpose, it is indispensable that sanitary evacuations shall not be considered solely from the standpoint of the technic of transportation but rather as an act of medicosurgical technic. Sanitary evacuation cannot be distinguished from evacuation. The purpose to be accomplished is the same: the best possible functioning of the health service of the armies in the field, in order to bring about more rapidly the recovery of the patients.

Lieutenant Colonel Babecki of the Polish army medical corps presented a study on the prophylaxis of intestinal infections in the army. These infections—among others typhoid, the old scourge of armies—made enormous ravages among the troops of all the belligerents at the beginning of the war of 1914-1918. Then, under the influence of vaccinations combined with the strengthening of hygienic measures, a steady retrogression of these diseases was brought about. The speaker explained then how the Polish army, profiting by the experience of the World War, organized its defense against these diseases.

Major De Block of the Belgian army medical corps presented a didactic film of the Belgian army, "Le sachet de pansement." After revealing what was the nature of the aid to the wounded in the wars of the past, the film showed the great accomplishments of the Belgian army medical corps during the World War. Better than the most detailed explanations, the film instructed the soldier in the use of the pad used to stop the flow of blood in a wound. The comments of the audience showed their interest in the film.

Major Sillevaerts, head of the health department of the air service of the Belgian army, gave his ideas on the special training of a physician for the air service. The air service demands of its physicians technical specialization made necessary by the selection of candidates for training in aviation. To fulfil his mission completely, the air service physician should know through personal experience the psychic and physical reactions that he is expected to supervise. Some aviation congresses have gone so far as to demand that an air service physician shall hold an air pilot's license. The speaker explained the system now being tried out in the Belgian army: a short course for young physicians in an aerodrome when they complete their course in the "school of application," to be followed by actual experience in flying.

Colonel Van Baumberghen of the Spanish army medical corps presented a study on the modern characteristics of sanitary equipment. The speaker is particularly well qualified to treat the subject, since he has served for many years as a member of the committee on the standardization of sanitary equipment. He emphasized the difficulties of the problems to be solved, which have to do with questions of a medicosurgical, technical, strategic and economic nature. He pointed out the importance of the standardization of this equipment, which is the natural first step toward a more complete standardization.

Lieutent Colonel Voncken of the Belgian army medical corps spoke on international law with relation to the health service. After considering first the origins and the foundations of international law, the speaker pointed out the constantly increasing extent of its applications to the health service. He emphasized that the military physician will remain the only representative of the doctrine of pity in the midst of the unleashed passions of war.

It was decided that the sessions of the bureau shall be held alternately at Liége (for the even years) and at the headquarters of the various international congresses of military medicine and miltary pharmacy (for the odd years). The next session will be held at Liége, at the headquarters of the bureau, June 2-4, 1932.

Among the American delegates at the conference were Colonel Fenton, Commander Bainbridge, Captain Pryor and Major Hume. This group of officers, together with the ambassador of the United States, conferred on General Demolder, at the close of the conference, the cross of the Military Surgeons Association.

The Office international de documentation de médecine militaire has developed during recent years. Functioning in part independently and in part through international collaboration, it has already secured the partial cooperation of the United States.

Marriages

Dickinson Woodruff Richards, Jr., New York, to Miss Constance Burrell Riley of North Plainfield, N. J., September 19.

Davis E. Hemington, Uniontown, Pa., to Miss Florence I. Reid of Brockville, Ont., Canada, September 15.

Ben Franklin Kilgore, Waterloo, Ill., to Miss Florence Martha Gieseke at Monmouth, September 15.

Ray Barlow Harris, Brighton, Maine, to Miss Florence Jennette Duncon at Athens, September 5.

Richard W. Spicer, Winston Salem, N. C., to Mrs. Stuart Hayden Rogers of Greensboro, August 31.

Peter J. Kapo, Philadelphia, to Miss Violet D. Mockaitis of Mahanoy City, Pa., September 26.

Troy Howell Hutchinson, Wise, Va., to Miss Jo Ann Martha Donohue of Sun, October 7.

Raymond Keith O'Brien, St. Petersburg, Fla., to Miss Zita Norpell of Chicago, June 24.

Bloyce Hill Britton, El Paso, Texas, to Miss Helen Sterling Williston, September 5.

Deaths

Charles Wilson Kollock, Charleston, S. C.; University of Pennsylvania School of Medicine, Philadelphia, 1881; member of the South Carolina Medical Association, American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; emeritus professor of rhinology and laryngology, Medical College of the State of South Carolina; served during the World War; laryngologist and rhinologist to the Roper Hospital; aged 74; died, September 23, of amyotrophic lateral sclerosis and chronic myocarditis.

Henry Thibault ⊕ Scott, Ark.; University of Arkansas School of Medicine, Little Rock, 1900; past president of the Arkansas Medical Society, and secretary of the Lonoke County Medical Society; formerly associate professor of medicine at his alma mater; member of the school board; aged 53; died, September 14, of tuberculosis.

Peter Henry Jobse, Wilsonville, Ore.; Northwestern University Medical School, Chicago, 1894; formerly professor of genito-urinary and clinical surgery, Milwaukee Medical College; member of the American College of Surgeons; aged 62; died, September 23, in St. Vincent's Hospital, Portland, of perforating duodenal ulcer.

Calvin Ross Elwood ⊕ Menominee, Mich.; University of Michigan Medical School, Ann Arbor, 1894; member of the American Academy of Ophthalmology and Oto-laryngology; served during the World War; on the staff of St. Joseph's Hospital; aged 61; died, September 18, of coronary thrombosis and chronic myocarditis.

Harry Eugene Williams, Jr., Pine Bluff, Ark.; Tulane University of Louisiana Medical Department, New Orleans, 1908; member of the Arkansas Medical Society; on the staff of the Davis Hospital; aged 46; died, August 22, in New Orleans, of cerebral hemorrhage and chronic nephritis.

George Rucian Hubbell, Petaluma, Calif.; Cooper Medical College, San Francisco, 1890; member of the California Medical Association; served during the World War; formerly city health officer; aged 64; died, September 15, in the Mount Zion Hospital, San Francisco.

George Cooper, London, Ont., Canada; Medical Faculty of Trinity University, Toronto, 1892; University of Toronto Faculty of Medicine, 1906; served during the World War; on the staff of the Ontario Hospital; aged 50; died, August 15, in St. Joseph's Hospital.

Edwin B. Strong, Rockford, Mich.; Detroit College of Medicine, 1887; member of the Michigan State Medical Society; for twelve years member of the school board; on the staff of St. Mary's Hospital, Grand Rapids; aged 68; died, September 20, of heart disease.

Louis Norman Yerkes, Mason, Mich.; Michigan College of Medicine and Surgery, Detroit, 1904; member of the Michigan State Medical Society; served during the World War; aged 68; died, September 14, of an infection following a minor leg injury.

Thomas Knox Mullins, Huntsville, Ala.; Atlanta College of Physicians and Surgeons, 1898; member of the Medical Association of the State of Alabama; veteran of the Spanish-American War; aged 56; died, September 19, of heart disease.

Charles Francis Archambeault, Troy, N. Y.; Albany Medical College, 1894; member of the Medical Society of the State of New York; formerly coroner, school physician and police surgeon; aged 56; died, September 20, of heart disease.

Daniel C. Case, Slingerlands, N. Y.; Albany Medical College, 1870; member of the Medical Society of the State of New York; aged 84; died, September 21, in Providence, R. I., of intestinal obstruction due to an operation for adhesions.

Thomas Morris Hayden, Fresno, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1874; member of the California Medical Association; aged 77; died, August 3, of perforated duodenal ulcer, peritonitis and acute uremia.

Benjamin Alonzo Cathey, Portland, Ore.; Willamette University Medical Department, Salem, 1890; member of the Oregon State Medical Society; aged 77; died, August 18, of nephritis, coronary thrombosis and pneumonia.

Henry Joseph O'Brien ⊕ St. Paul; University of Pennsylvania School of Medicine, Philadelphia, 1888; on the staffs of St. Joseph's Hospital and the Miller Hospital; aged 69; died, September 16, of cerebral hemorrhage.

Louis O. Home, Linneus, Mo.; Missouri Medical College, St. Louis, 1884; member of the Missouri Medical Association; formerly county coroner; aged 74; died, September 1, of acute myocarditis and infection of the prostate.

Azariah Worthington Parsons, Oakwood, Texas; Harvard University Medical School, Boston, 1880; National University Faculty of Medicine, Mexico City, 1898; aged 74; died, September 4, of chronic myocarditis.

William Scarff Wiley, Bristol, Va.; Baltimore Medical College, 1905; member of the Medical Society of Virginia; on the staff of the King's Mountain Memorial Hospital; aged 49; died, September 11, of tetanus.

Richard Augustus Verdier ⊕ Corvallis, Ore.; Atlanta (Ga.) School of Medicine, 1908; member of the State Medical Association of Texas; aged 49; died, August 20, of septicemia following a mastoid operation.

James William Henderson ⊕ Clarksdale, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; on the staff of the Ancient Order of Watchmen Hospital; aged 54; died, September 10, of heart disease.

Thomas B. Johnson, Towanda, Pa.; Bellevue Hospital Medical College, New York, 1868; member of the Medical Society of the State of Pennsylvania; aged 87; died, July 8, of carcinoma of the liver.

Lorenzo Cantu ⊕ Eagle Pass, Texas; School of Medicine of Nuevo Leon, Monterey, Mexico, 1886; aged 68; died, July 7, in a hospital at San Antonio, of septicemia due to an infection of the prostate.

Henry R. Spruance ⊕ Wilmington, Del.; Jefferson Medical College of Philadelphia, 1892; aged 65; died, August 14, in the Jefferson Hospital, Philadelphia, of acute suppurative orchitis, myocarditis and uremia.

Charles Caldwell Park, Montecito, Calif.; Bellevue Hospital Medical College, New York, 1888; member of the California Medical Association; aged 70; died, August 14, of cerebral hemorrhage.

John Franklin May, Ashland, Ky.; Kentucky University Medical Department, Louisville, 1905; member of the West Virginia State Medical Association; aged 62; died, September 14, of heart disease.

John R. Cunning, Lonoke, Ark.; Kentucky School of Medicine, Louisville, 1894; member of the Arkansas Medical Society; health officer; aged 70; died, July 18, of mitral insufficiency and diverticulitis.

William J. Mabee, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1908; for many years on the staff of the Toronto General Hospital; aged 50; died, August 23, of heart disease.

Theodore Leacraft Hein ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1905; served during the World War; aged 52; died, September 25, of heart disease.

William Thomas Morgan Gadsden, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; member of the Medical Society of the State of Alabama; aged 62; died, August 5.

Elwyn Stevens Coburn ⊕ National City, Calif.; Medico-Chirurgical College of Philadelphia, 1895; part owner of the Elwyn Sanitarium; aged 66; died, August 26, of chronic myocarditis.

Bernhardt H. Baumeister, San Francisco; University of California Medical Department, 1882; aged 79; died, September 4, in St. Joseph's Hospital, of hypertrophy of the prostate.

Louis Ginsburg ⊕ Toledo, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1918; on the staff of the Mercy Hospital; aged 41; died, September 25, of pneumonia.

George Edmund Mauk ⊕ Clearfield, Pa.; Medico-Chirurgical College of Philadelphia, 1909; on the staff of the Clearfield Hospital; aged 47; died, August 27, of heart disease.

Philip Abram Smith, Milton, Pa.; Medical Department of the University of the City of New York, 1888; also a minister; aged 70; died, September 14, of chronic nephritis.

Frederick William Cordes ⊕ Brooklyn; Albany Medical College, 1895; on the staff of the Bushwick Hospital; aged 60; died, September 8, in the Swedish Hospital.

Charles Landon Fletcher, Morris, N. Y.; University of Vermont College of Medicine, Burlington, 1873; formerly county coroner; aged 80; died, September 15.

John William Geiger, New Brookland, S. C.; Medical College of the State of South Carolina, Charleston, 1857; Civil War veteran; aged 99; died, August 24.

George Montgomery McMillan, Cordele, Ga.; Southern Medical College, Atlanta, 1883; also a druggist; formerly mayor of Cordele; aged 72; died, July 14.

James Squair Calder, Los Angeles; Harvard University Medical School, Boston, 1866; member of the California Medical Association; aged 90; died, August 27.

David C. Cline, Dumfries, Va.; Lincoln Memorial University Medical Department, Knoxville, 1911; aged 63; died, August 16, of cardiorenal vascular disease.

Joseph Hamilton ⊕ Oakland, Calif.; Cooper Medical College, San Francisco, 1903; aged 56; on the staff of the Merritt Hospital, where he died, September 19.

Walter Howard Cowan ⊕ Conneaut Lake, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1898; aged 63; died, September 26, of coronary thrombosis.

Edmund St. George Baldwin, Toronto, Ont., Canada; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1875; aged 80; died, August 31.

Herbert William Burgess, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1905; aged 60; died, July 15, in St. Michael's Hospital.

Milton Mallory Tucker, Orono, Ont., Canada; Victoria University Medical Department, Coburg, 1870; M.R.C.S., England, 1876; aged 81; died, July 20.

Wilfred Jerrold Taylor, Thompson, Conn.; Jefferson Medical College of Philadelphia, 1900; aged 54; died suddenly, August 23, of cerebral hemorrhage.

Samuel Luther McCreight, Oak Park, Ill.; Rush Medical College, Chicago, 1885; aged 82; died, September 27, of chronic myocarditis and arteriosclerosis.

William Herbert Black, Johnson City, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1926; aged 32; was asphyxiated, July 30.

Joseph Morin, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1904; died, August 3, in the Hospital du Saint Sacrement.

Winfield S. Brandon, Daleville, Ind.; Medical College of Indiana, Indianapolis, 1882; aged 79; died, August 17, in St. John's Hospital, Anderson.

Joseph Agate House, New York; Eclectic Medical College of the City of New York, 1880; aged 76; died, September 18, of angina pectoris.

Carlos Gabriel Armstrong ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1920; aged 34; died, July 22.

Samuel Ewing Standrod, Rockcastle, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1886; aged 68; died suddenly, July 30.

Maurice B. Sincere, Chicago; Bellevue Hospital Medical College, New York, 1888; aged 64; died, July 15, of septicemia following a carbuncle.

Alfred Robb Bailey, Seattle; University of Nashville (Tenn.) Medical Department, 1888; aged 71; died, in September, of heart disease.

Theodore C. Wheaton, Millville, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1879; aged 79; died, September 8.

Park William Bushong ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; aged 56; was drowned, in September.

David D. Fritch, Macungie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1876; aged 83; died, in September.

Cornelius Larsen Lenard, Chicago; College of Physicians and Surgeons, Chicago, 1895; aged 64; died, September 24, of heart disease.

Bayard Kane, West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1899; aged 59; died, August 31.

Clark R. Campbell, Williamsburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 73; died, September 10.

Thomas R. Logan, Lewisburg, Tenn.; Vanderbilt University School of Medicine, Nashville, 1890; aged 67; died, August 28.

James Newman Fuller, Berwick, N. S., Canada; Bellevue Hospital Medical College, New York, 1868; aged 85; died, July 23.

Orville Curtis ⊕ Buchanan, Mich.; Albany Medical College, 1893; aged 64; died, September 19, of cerebral hemorrhage.

Charles F. Negley, Henderson, Ky.; Louisville Medical College, 1902; aged 77; died, September 19, of thrombosis.

Bureau of Investigation

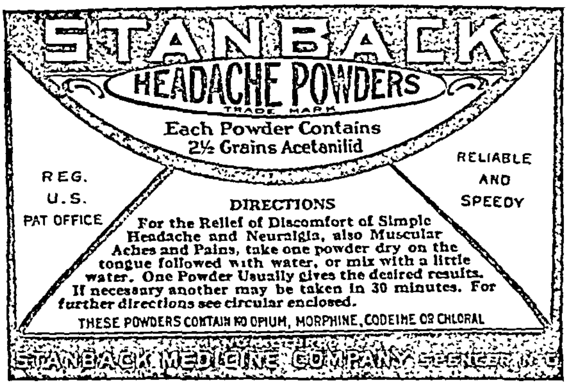
MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Anti-Phymin.—R. E. MacIntire and Company, Pensacola, Fla., shipped in June, 1929, into Alabama a quantity of Anti-Phymin that was declared misbranded. The preparation consisted of sulphur dioxide and water, the water being present to the extent of 99.81 per cent. The claim made for the preparation, that it was a "compound of essential atmospheric elements," was declared false and misleading, while the claim that it would effectively control bacterial fermentation in the body was declared false and fraudulent. In May, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17453; issued March, 1931.*]

[Anti-Phymin was dealt with at some length in this department of THE JOURNAL, August 15, 1925, at which time the analysis made by the A. M. A. Chemical Laboratory showed that this fraudulently exploited remedy belonged to the same class as "Liquozone," "Radam's Microbe Killer," "Septicide," etc. Since the issuance of the government, report, abstracted above, on Anti-Phymin, the name Anti-Phymin seems to have been dropped and it is now known as Medicinal Gas. The concern that puts it out had, according to a letterhead sent out in July, 1931, one H. Michener, M.D., for its "Supervising Physician." Michener, in 1930, seems to have been in charge of a so-called Wichita Tuberculosis Laboratory at Wichita, Kans.]

Stanback Headache Powders.—The Stanback Medicine Company, Spencer, N. C., shipped into Georgia in January and February, 1929, a quantity of Stanback Headache Powders that were declared misbranded. Each powder contained over 2 grains of acetanilid, nearly 6 grains of aspirin, and more than 11½ grains of potassium bromide, together with caffeine. The product was declared adulterated, because the amount of acetanilid present was incorrectly stated on the label; it was declared misbranded, because the claims that it was a remedy for neuralgia, earache, toothache, rheumatic and female pains, influenza, etc., were false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17460; issued March, 1931.*]



STANBACK

HEADACHE POWDERS

TRADE MARK

Each Powder Contains
2½ Grains Acetanilid

REG.
U.S.
PAT OFFICE

RELIABLE
AND
SPEEDY

DIRECTIONS

For the Relief of Discomfort of Simple Headache and Neuralgia, also Muscular Aches and Pains, take one powder dry on the tongue followed with water, or mix with a little water. One Powder Usually gives the desired results. If necessary another may be taken in 30 minutes. For further directions see circular enclosed.

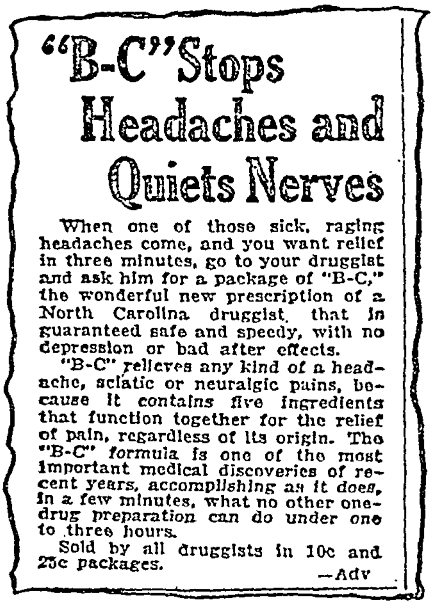
THESE POWDERS CONTAIN NO OPIUM, MORPHINE, CODEINE OR CHLORAL

STANBACK MEDICINE COMPANY, SPENCER, N. C.

All Healing Ointment.—The Manhattan Drug Company, Brooklyn, N. Y., shipped in January, 1930, to South Carolina a quantity of All Healing Ointment that was declared misbranded. The preparation had a lanolin base, together with zinc oxide, boric acid, carbolic acid, sulphur, menthol and thymol. The claims that it was a remedy for boils, itch, ulcers, all skin diseases, etc., were declared false and fraudulent and in January, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17459; issued March, 1931.*]

Bromalina.—This preparation was being sold and offered for sale in February, 1930, in Porto Rico. When analyzed, it was found to consist essentially of creosote, a trace of bromoform, sugar, alcohol and water, flavored with oil of wintergreen. The claims that it was a remedy for influenza, cough, bronchitis, etc., were declared false and fraudulent, and in March, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17205; issued January, 1931.*]

B-C for Headache and Neuralgia.—The B. C. Remedy Company, Durham, N. C., shipped in January, 1929, into Georgia a quantity of B-C for Headache and Neuralgia that was misbranded. The product came in the form of powders, each containing over 6½ grains of aspirin, nearly 4 grains of acetanilid, and over 12 grains of potassium bromide. The statement on the trade package, that it was "absolutely safe," was declared false and misleading; the claims that it was a positive relief for neuralgia, sleeplessness, influenza, rheumatic and female pains, etc., were declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17469; issued March, 1931.*]



"B-C" Stops Headaches and Quiets Nerves

When one of those sick, raging headaches come, and you want relief in three minutes, go to your druggist and ask him for a package of "B-C," the wonderful new prescription of a North Carolina druggist, that in guaranteed safe and speedy, with no depression or bad after effects.

"B-C" relieves any kind of a headache, sciatic or neuralgic pains, because it contains five ingredients that function together for the relief of pain, regardless of its origin. The "B-C" formula is one of the most important medical discoveries of recent years, accomplishing as it does, in a few minutes, what no other one-drug preparation can do under one to three hours.

Sold by all druggists in 10c and 25c packages.

—Adv

Rocky Mountain Cough and Catarrh Root.—The Colorado Cough and Catarrh Root Company of Denver shipped in February, 1930, into the State of Washington a quantity of Rocky Mountain Cough and Catarrh Root that was declared misbranded. The stuff was found to be the dried rhizomes and roots of a species of angelica. The claims on the trade package, that it was a remedy for cough and catarrh, bronchial asthma, rheumatism, consumption, indigestion, neuralgia, nervousness, general debility, and various other conditions, were declarea false and fraudulent. In May, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17465; issued March, 1931.*]

Larkin Cold and Grippe Tablets.—The Larkin Company, Inc., Buffalo, N. Y., shipped between December, 1928, and February, 1929, a quantity of Larkin Cold and Grippe Tablets that were misbranded. The tablets contained acetanilid, quinine hydrobromide, monobromated camphor, caffeine and aloin. The claim that the product was a remedy for influenza, etc., was declared false and fraudulent; the statement that the tablets were absolutely safe was declared false and misleading. In March, 1930, the Larkin Company of Illinois appeared as claimant, and judgment of condemnation and forfeiture was entered. The court ordered that the product be released to the Larkin Company of Illinois upon payment of costs and the execution of a bond of $300, conditioned in part that it be relabeled truthfully.—[*Notice of Judgment 17473; issued March, 1931.*]

Watkins Menthol-Camphor Ointment.—The J. R. Watkins Company of Newark, N. J., shipped between September and December, 1929, into California a quantity of Watkins Menthol-Camphor Ointment that was declared misbranded. The product was, essentially, petrolatum containing camphor and menthol. The claim that it was a remedy for influenza, spasmodic croup, neuralgia, etc., was declared false and fraudulent, and in May, 1930, the J. R. Watkins Company of Winona, Minn., admitted the allegations. Judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the Watkins concern under a bond of $3,000 and the payment of costs, on condition that it be relabeled and repacked to conform to the law.—[*Notice of Judgment 17467; issued March, 1931.*]

Neuraline Tablets.—The Eureka Medical Company of South Bend, Ind., shipped in December, 1928, into Missouri a quantity of Neuraline that was declared misbranded. Neuraline Tablets were found to contain 2½ grains of acetanilid to each tablet and milk sugar. The claims that it was a remedy for neuralgia, influenza, rheumatic pains, painful menses, tonsillitis, etc., were declared false and fraudulent. In May, 1930, the court ordered that the product be destroyed.—[*Notice of Judgment 17470; issued March, 1931.*]

Baker's Laxative Cold and Grippe Tablets.—The Manhattan Drug Company, Brooklyn, N. Y., shipped in July, 1929, into Michigan a quantity of Baker's Laxative Cold and Grippe Tablets that were misbranded. The tablets contained acetanilid, aloes and traces of cinchonine and red pepper. The claims on the trade package, that it was a remedy for influenza, coughs, neuralgia, bronchitis, etc., were declared false and fraudulent, and in February, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17206; issued January, 1931.*]

Correspondence

"TRANSMISSION OF TUBERCULOSIS"

To the Editor:—In The Journal, August 1, page 316, Dr. J. A. Myers offers a pathetic picture which may create unrest in the minds of prospective medical students and tuberculosis nurses as well.

The teaching of tuberculosis as a clinical entity in medical schools had its inception about twenty years ago. Previous to that time tuberculosis was not considered of sufficient importance to be offered space in the curriculum of any medical school in our country. I can well recall my first attempt at the organization of a class for the teaching of clinical tuberculosis. At that time all medical students considered the examination of an active tuberculous person as extremely hazardous, and it was not until many years later, when the student body became convinced that there was actually no danger in the physical examination of the tuberculous patient, that classes became enrolled for intensive study of tuberculosis at the bedside. Gradually as the students overcame their inborn fear my classes began to grow in number. When I gave my last and final class on tuberculosis at Rush, the Medical Department of the University of Chicago, in 1927, I had an enrolment of seventy students, and four members of the class were women. All were junior and senior students. As to Dr. Myers' carefully written paper, I am quite confident that if it or a similar paper had been circularized among the many students whom I have taught their first principle in physical diagnosis and subsequently tuberculosis I would not have been able to organize a single class—all out of an unwarranted fear that contact with a tuberculous individual would bring about infection and later disease. We know today that even under ordinary precautions alone there is no danger of becoming either infected or diseased.

It is hardly conceivable that with even ordinary care a medical student examining an active tuberculous individual, or a probationary nurse taking care of or nursing an active tuberculous person, should in so limited a time show all the symptoms of active tuberculosis, from a nontuberculous person in so short a time become an adolescent tuberculous person.

A student's tuberculin test, January 15, was negative to a milligram, a negative Mantoux, but after ten days' service with an active tuberculous person was found positive on April 21, three months later, and a nurse in September, 1930, was Mantoux negative, but on taking care of a desperately sick tuberculous patient was not only infected in November, 1930, also after three months, but tuberculously diseased as well. This may all happen, but it must be extremely infrequent. The histories of the seven patients—both students and nurses—all give a similar picture after active tuberculosis service; hence one must assume that all must have had a massive implantation of tubercle bacilli; also the percentage of pleurisies with effusion, which usually is evidence of active tuberculosis, is much higher than is generally found in the routine examinations of suspected tuberculous persons. Four patients out of seven, judging from the case histories, had this complication: 57 per cent, unusually high. The classic observations of Professor Saugmann of Denmark, some years ago, covering a period of ten years, and the surveys made at several sanatoriums in our own country all show that, in the relationship of the interns, attendants and nurses in the care and treatment of the tuberculous at tuberculosis sanatoriums the incidence of tuberculous infection and disease is very infrequent. I believe that this able paper presented by Dr. Myers offers too gloomy a picture to the prospective medical student, the probationary nurse and the hospital nurse.

John Ritter, M.D., Miami, Fla.

[Note.—Dr. Ritter's letter was referred to Dr. Myers, who replies:]

To the Editor:—The points to which Dr. Ritter takes exception seem to be (1) that such facts will frighten students and (2) that tuberculosis is not communicable.

The situation which Dr. Ritter refers to was true years ago because tuberculosis was considered incurable at that time and hence the fear which the public had was an unreasoning one. Since this situation no longer exists, the possibility of a reversion to such a fear is unfounded. My experience with students of nursing and medicine has taught me that they are not cowardly groups; that most of them appreciate the health hazards of the nurse and the physician in school and in practice. Most of them know of numerous fatalities which have occurred among members of their professions from communicable diseases. They are confident of the fact that the school of nursing or the school of medicine of today will provide every known method of protection against smallpox, diphtheria, typhoid, scarlet fever, and the other diseases commonly found in a contagious service. They have so much confidence that their faculties and hospital authorities will provide this protection that they have little or no fear of the diseases. Moreover, they look on this as an opportunity to learn how to protect themselves against the disease when they enter on the practice of their professions. They also have a hope of being able to pass on what they have learned by way of prevention to others. If, however, it became noised about that a certain hospital was not providing the essential protection against contagious diseases and that from 5 to 12 per cent of the students who entered that service fell ill and several died every year, most certainly the students would be justified in shunning that service.

It is a well established fact that the morbidity from tuberculosis among students of medicine and nursing and recent graduates of these schools is greater than among young men and young women of the general population, and it is possible to trace infection and disease with laboratory accuracy from the tuberculous patient to the student who was previously uninfected. Dr. Ritter states that it is hardly conceivable that even with ordinary care a medical student or a student nurse should in so limited a time show all the symptoms of active tuberculosis. In the seven cases reported, it is my opinion that their lesions represent the first infection or childhood type of tuberculosis. Four of them developed pleurisy with effusion, which I interpret as an allergic reaction. Dr. Ritter is of the opinion that each of the seven students had a massive implantation of tubercle bacilli. Possibly this is true, but is it not a disparaging reflection on the nursing and medical schools of this country to allow this to occur?

Although opinion has been to the contrary, investigations show that many hospitals and schools of nursing and medicine are spreading tubercle bacilli to the uninfected students. These bacilli reap their harvest in the clinical years of student life and in the early years of practice.

I am firmly convinced that the students of these professions are not cowards but that they will continue to enter these professional schools and that they should demand and will demand the same protection that is now provided them against other communicable diseases.

J. Arthur Myers, M.D., Minneapolis.

"'PANAGGLUTINABLE' ERYTHROCYTES"

To the Editor:—I read with considerable interest your editorial on "'Panagglutinable' Erythrocytes" (The Journal, August 1, p. 323). Recently, in the examination of several specimens of menstrual blood, it was found that suspensions of the red blood corpuscles were agglutinated by serums of all four blood groups in nearly every case. In one case in which this did not occur, the menstrual blood was reexamined after having been kept in the icebox for two weeks and then was found to be markedly panagglutinable. The significance of this observation is that the vagina contains one or several organisms that can produce the Thomsen phenomenon.

Alexander S. Wiener, M.D., Brooklyn.

DEHYDRATION AND ANURIA

To the Editor:—I noticed with interest an article in The Journal, August 22, by Drs. Root and Henson giving in detail the history of a case of appendicitis which postoperatively was followed by vomiting and anuria or retention. The patient was evidently relieved by the injection of 60 cc. of a 10 per cent solution of sodium chloride intravenously in the short period of four hours. The cause of the condition they assume to be a lowered blood chloride content, which in this case by actual measurement was 248 mg., caused by the vomiting. To me the lowered chloride content appears extremely doubtful as the cause of the anuria, which can be much more readily explained on the dehydration produced by the vomiting, especially since the injection of 1,650 cc. of physiologic solution of sodium chloride given previously by hypodermoclysis failed to relieve the condition. In this case the administration of dextrose probably did more to relieve the condition by stopping vomiting than did the simple injection of the concentrated chloride solution.

Benjamin Pollack, M.D., Willard, N. Y.

[Note.—The letter was referred to Dr. Root, who replies:]

To the Editor:—With regard to Dr. Pollack's contention that dehydration was the cause of anuria, it should be remembered that the child had received and retained not only 1,650 cc. saline solution under the skin but also 4,680 cc. tap water by rectum. Furthermore, his tongue was moist and he appeared edematous rather than dehydrated. Also, he did not stop vomiting after he was given dextrose solution. The low plasma chloride is still unexplained.

Howard F. Root, M.D., Boston.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF CONVALESCENT SERUM IN POLIOMYELITIS

To the Editor:—Can you give me the technic for handling poliomyelitis serum for therapeutic purposes, from donor to patient; i. e., quantity withdrawn at one time, preservatives, duration of potency and dosage?

Henry Stewart, M.D., Gettysburg, Pa.

Answer.—The blood is withdrawn under sterile precautions by means of a special apparatus into a centrifuge flask. The flask has a two-hole stopper with glass and rubber tubes attached, such as is usually used for collecting fluids aseptically. After coagulation has occurred the serum is drawn off and centrifugated. Wassermann and sterility tests are performed on the serum.

The amount drawn varies with the age, size and condition of the donor and may be from 150 to 400 cc. Tricresol is used as a preservative; equal parts of ether and tricresol are added so that there is a final concentration of 0.2 per cent tricresol, or 0.4 per cent of the mixture of ether and tricresol. It is generally agreed that the potency of the serum is not appreciably diminished over a period of one year, when kept at 4 C. There is a variance of opinion as to dosage, but it is generally agreed that the first dose in a case is 20 cc. of serum intraspinally and 60 cc. intravenously, and, if a second or third administration is necessary, each dose is 20 cc. intraspinally. Additional treatment depends on the course and progress of the case.

USE OF METAPHEN

To the Editor:—What strength metaphen is suitable as a local treatment to the cervix and other parts in gonorrhea? Is metaphen suitable for this? Please omit name.

M.D., Indiana.

Answer.—Metaphen is a germicide which contains from 58 to 60 per cent of mercury in organic combination and is said to be so powerful that it inhibits the growth of staphylococci in a dilution as high as 1:20,000,000. It is relatively nonirritating when applied to mucous membranes or the skin. Hence it should likewise exert no deleterious effect on the cervix. Local applications of metaphen have been advocated for the treatment of gonorrhea, for infections of the eyes, for disinfection of the skin and for sterilization of instruments and rubber. The solution recommended for urethral irrigations varies from 1:5,000 to 1:10,000 and for application to the skin from 1:500 to 1:2,500. A solution varying from 1:500 to 1:1,000 may safely be applied to the cervix in cases of gonorrhea. As far as is known there has been no report on the use of metaphen for gonorrheal cervicitis.

HEART DISEASE FOLLOWING BLOW OVER STERNUM

To the Editor:—Is there any evidence that a blow on the sternum or over the heart can cause (1) auricular fibrillation, (2) pericarditis, (3) fever? In the case in point a woman, aged about 40, received a blow on the chest from the steering wheel of her automobile in an accident. There were no visible signs of contusion and no fracture of the ribs or sternum. The woman says she was perfectly well before the accident and insists on a causal relationship between the trauma and her present condition. Please omit name.

M.D., California.

Answer.—1. No record has been found of a case in which a blow on the sternum or over the heart is shown to have caused auricular fibrillation. Such a blow, however, may well cause a disturbance of the cardiac rhythm of longer or shorter duration.

2. A blow over the pericardium may result in pericarditis. Such a case, following an automobile accident in which the victim was thrown violently forward against the steering wheel, was reported in *Minnesota Medicine* 9:453 (Aug.) 1926.

3. After such an injury, if pericarditis occurs, a rise of temperature may be expected. Such a rise of temperature may possibly be due, too, to other results of the injury. In any case, the frequency with which disorders of the heart exist without the knowledge of the person whose heart is disordered, and are discovered only in the course of medical examinations made in connection with applications for insurance or after accidents,

compels caution in attributing such a disorder to trauma when it is discovered after an accident. In any case such as that described, the subjective visceral symptoms may be the result of a lowering of the threshold of consciousness due to nervous shock, plus wishful thinking, entirely apart from any intention of deception on the part of the patient.

REMOVAL OF RETAINED ROOTS OF TEETH

To the Editor:—I have a patient showing symptoms of focal infection. Roentgenograms of the teeth show about one-half inch of apex of a root remaining in the lower jaw where a wisdom tooth was extracted about five years ago. The plate shows no rarefaction of bone, no pus pockets or granuloma. Will the fragment of tooth remaining, in the absence of any definite infected area, cause sufficient bacterial invasion to produce symptoms of focal infection? I might add that there is no local tenderness or soreness. I would appreciate a bibliographic reference also.

E. J. Reichley, M.D., Herington, Kan.

Answer.—If there are no other regions in the mouth or elsewhere that are at all suggestive of infection and, therefore, of being a primary focus, this condition in the socket of a lower wisdom tooth deserves careful attention. The absence of local symptoms is of no material importance. The bone plates on both sides of this socket are so thick as to interfere with the penetration of the roentgen rays, so that a moderate degree of bone resorption may not be recorded on the negative. Films exposed at a number of different angles are often of value in solving such a problem; the film may be held between the teeth, well back, and exposed with the tube aimed at the lower border of the mandible near the angle.

One hesitates to advise the removal of this root without some positive evidence as to its involvement, because of the technical difficulties of the operation resulting from inaccessibility and the presumed density of the bone about this root. Hence it should be attempted only as a last resort or after eliciting definite evidence of disease.

The histology of retained roots has been carefully described by Gottlieb and his co-workers (Kotangi: Histologische Befunde an retinierten Zahnen, *Ztschr. f. Stomatologie*, 1924). Many of them are without evidence of infection and in some instances are joined to the bone.

CLIMATE AND REST FOR SINUS INFECTION AND CARDITIS

To the Editor:—A boy, aged 7, for the last two or three years has had a postnasal infection. Roentgen examination reveals thickening of the antral linings, involvement of the ethmoids, and the like. He has had many attacks of acute otitis media. Last winter he developed an acute mastoiditis (for which operation was performed), during which he had an acute endocarditis; this has left his heart with some muscular impairment—the pulse rate is constantly over 100. The boy's parents wish to take him to Arizona this year for the winter, hoping that his postnasal infection may be benefited. They wish to go either to Tucson or Phoenix. Which would be most beneficial to his nasal condition, which less detrimental to his heart condition? As I understand it, the altitude of Tucson is much greater than that of Phoenix, while the air at Phoenix is much more moist than that around Tucson. Please omit name.

M D., Indiana.

Answer.—The dryer climate would certainly be more advantageous for the postnasal infection. The altitude of Tucson is only 2,286 feet, which is hardly enough to be especially detrimental to his heart. However, if there is any question, other places may be found where the altitude is even less and where it is at least equally dry, as Palm Springs, Calif., and there are doubtless many other such locations. If there is the least evidence of the carditis being still active, as indicated by an elevation of the temperature above normal, he should be kept at absolute rest wherever he is.

OOPHORECTOMY AND LIBIDO

To the Editor:—I have a patient who had a bilateral salpingectomy and oophorectomy ten years ago. Since then she has lost all sexual desire, has gained 20 pounds and has lost the energy she once had. It was my understanding that removal of the ovaries had no effect on sexual desire. Am I right? Could the changes here be due to a disturbance in some of the other internal glands of secretion? What should I advise her about treatment? Please omit name. M.D., Texas.

Answer.—In most instances in which castration is produced either by bilateral oophorectomy or by radiation therapy, sexual desire remains undisturbed. Libido is also retained in most women who have passed the natural menopause and in whom presumably all ovarian activity has ceased. On the other hand, patients with nymphomania or pathologically increased sex desire are not benefited by bilateral oophorectomy. In spite of all this, the sex urge does diminish or disappear in a certain proportion of women who are castrated artificially. How much of this is due to the physical removal of the ovaries is difficult to say, but there is undoubtedly a large psychic factor. The public, male as well as female, is of the opinion that removal of the ovaries "unsexes" a woman and that therefore any sex desire she may have is lost after such an operation. Furthermore, many lay individuals believe that any operation for the purpose of producing sterilization, even if it consists only of ligation of the fallopian tubes, also brings about the loss of libido. These beliefs undoubtedly play a part in some of the cases in which sex desire is lost after operation.

Removal of both ovaries before the natural menopause has an effect on at least some of the other glands of internal secretion, especially the pituitary, but most likely these effects have nothing to do with the loss of sex desire. Treatment directed toward the restoration of libido is not simple. Drugs are almost entirely useless except when they are employed to tone up the patient's general condition. Since there is a large psychic factor in these cases, a sympathetic and tactful discussion with the patient may help.

FRACTURE INTO INTERNAL EAR

To the Editor:—A man, aged 65, fell about 20 feet, fracturing the petrous portion of the right temporal bone, the fracture extending up on the squamous portion, with rupture of the tympanum, with at the same time a fairly long laceration in the external canal which was independent of the tear in the drum. He was unconscious for about half an hour and semiconscious for about twenty-four hours. Extreme dizziness and vertigo, with tinnitus, have persisted and sudden movements aggravate these symptoms. He has a positive Romberg test, falling always to the left. There is slight arteriosclerosis, but not to a degree that would be expected to cause these symptoms, and in view of the fact he had never been troubled in the past, it would seem probable that the fracture is responsible. Can you give me any idea as to the probable duration of these symptoms, and also whether any line of treatment other than rest is indicated? Please omit name and address. M.D., Florida.

Answer.—The symptoms reported are those which result from any sudden destruction of the internal ear, such as a fracture through the petrous portion of the temporal bone. The inquirer fails to mention, however, the fact that the patient is *totally deaf in the affected ear.*

The fracture was on the right side and the patient has a positive Romberg sign which causes him to fall to the left. This is not in keeping with the usual clinical picture of a sudden destruction of the right ear. The tonus impulses from the right ear stimulate the muscles which produce movements to the left, and the tonus impulses from the left ear stimulate the muscles causing movement to the right. Disturbances of equilibrium that arise from the sudden destruction of one labyrinth are back of the unbalance occasioned by the sudden suppression of the tonus from this ear. If the right ear is destroyed and its tonus suppressed, the impulses from the left ear should cause the patient to fall to the right.

As regards the duration of the symptoms resulting from a fracture through the petrous bone: The destruction of the hearing function is permanent. The tinnitus may persist indefinitely but usually subsides to a point at which it causes little annoyance to a patient after a few months. The most annoying symptom of all, the intense vertigo, is of only short duration and practically disappears before the lapse of a month or two.

INCREASED ALTITUDE AND HEART DISEASE

To the Editor:—I have a woman patient, aged 50, who has nephritis with albumin and casts in the urine. Her blood pressure is 200 systolic and 110 diastolic, and decided evidence of decompensation of the heart is apparent. When up and around there is much edema of the feet and legs, which disappears after several weeks in bed. She is orthopneic and dyspneic. With an elevation here of about 1,400 feet, what possibilities would there be of her being able to go to the state of Washington? She proposes going by way of the Great Northern Railroad, which is supposed to have a tunnel which cuts down the necessity of such great elevation. Please omit name. M.D., North Dakota.

Answer.—The patient would do much better to remain at a low altitude. If she is going to a low altitude in Washington it is probable that she could make the trip safely, but there is a certain element of danger, which must be weighed and carefully balanced against the ability of the patient's heart to respond to increased demands. The route chosen hardly gets above 4,000 feet and is above 2,000 feet for less than twenty-four hours and above 3,000 feet for only about eight hours.

The decrease in oxygen tension with increased altitude must be compensated for by an increase in the depth and rate of respiration to increase the minute volume of air respired, by an increase in the minute volume of blood pumped by the heart, and in some part by an increase in the number of red cells, to increase the oxygen carrying power of the blood.

There is not much change in respiratory rate in normal people below 5,000 feet, and the pulse rate rarely shows much change below 5,000 feet, and in one group of normal men only 1 per cent showed any change at 7,000 feet.

It is a question of whether the patient's condition warrants subjecting her to the fatigue and excitement of a railway journey, plus a moderate increase in the work of the heart demanded by an increased altitude. The margin of safety and the ability of the heart to respond must be judged at the bedside. Certainly many patients do become worse under the conditions stated.

UNUSUAL OBSTETRIC CONDITION

To the Editor:—Mrs. R. O., a primipara, last menstruated, Oct. 3, 1916. The first week of February, 1917, she passed a clot half the size of a fist. I did not see her at that time but in consulting me afterward she said that she tried to disintegrate the clot but could not. I told her that she probably had an abortion. July 18, 1917, she gave birth to a full term baby girl as a breech presentation. Soon after its birth she began to have pains again. On examination I found the bag of waters protruding; it soon ruptured with a profuse rush of water. The placenta was delivered normally. I do not know whether this case is unique or otherwise: abortion at the end of the third month and five and one-half months afterward a full term baby with separate bags of water and one placenta. If this is worth publishing, I would like you to give an explanation.

R. L. Greer, M.D., Oakfield, Tenn.

Answer.—The description of the case is not clear. The statement is made that, after the full term baby was delivered as a breech presentation, a bag of waters protruded and ruptured with the escape of a large amount of water. It is important to know whether anything else escaped. It is hard to conceive that there existed a large bag of waters with nothing in it except liquor amnii. In a pregnancy, whether single or multiple, when the fetus escapes, the membranes, which of course had to rupture to permit the escape of the child, collapse and no more fluid can accumulate. It may be that the large clot which the patient expelled in February did not contain a fetus but simply represented a hemorrhage in a case of single pregnancy. Cases have been reported in which one fetus of twins or triplets was expelled during the early months of pregnancy and the remaining fetus or fetuses continued to develop until full term. These are usually cases of double ovum twins or triplets with two placentas. Usually, however, when one of two or three fetuses dies in utero it is retained in the uterus until full term. During labor it is expelled as a flat, mummified fetus known as a fetus compressus or a fetus papyraceus.

SODIUM CITRATE MIXTURE—MORPHINE FOR INJECTION—STERILIZING PROCAINE

To the Editor:—I would like some information about the following points: 1. I would like to use an aqueous solution of sodium citrate of about 25 per cent as an alkalizing agent. What can be used as a vehicle to render the salty taste less unpleasant? 2. Is morphine stable in aqueous solution in a strength of about one-fourth grain per cubic centimeter? Is it stable in the same strength in 25 to 50 per cent magnesium sulphate? 3. Can these solutions be sterilized in an autoclave? Will magnesium sulphate in this strength have any preservative action? 4. Can procaine solutions be autoclaved? Won't this destroy the epinephrine in such solutions? Please omit name. M.D., Indiana.

Answer.—1. The disagreeable taste of the sodium citrate solution can be lessened by giving it in more dilute solution, and especially by using it in the form of an effervescent salt.

2. One-fourth grain of morphine is not soluble in 1 cc. of water; hence morphine sulphate or hydrochloride should be used. Such solutions are relatively stable but decompose after a time and should not be used when any deposit occurs in the solution. Aqueous solution of morphine sulphate or hydrochloride kept in soft glass will deposit morphine in time, owing to alkali dissolved out of the glass.

3. Magnesium sulphate probably has no influence on the keeping properties of morphine dissolved in it; the solution can be sterilized in an autoclave without decomposition of the morphine.

4. Procaine (hydrochloride) may be heated with proper care in suitable containers in the absence of any trace of alkali. Epinephrine is even more sensitive to alkalis, but the solution of procaine with epinephrine may be sterilized with suitable precaution. It must not be heated for more than a few minutes and should be used at once after sterilizing.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: Written examination for Group III candidates to be held in eighteen cities in the United States and Canada, Oct. 31. *Clinical examination for all candidates.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

Arkansas: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

Connecticut: *Regular.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: *Regular and Homeopathic.* Wilmington, Dec. 8-10. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

Florida: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

Kansas: Kansas City, Dec. 8. Sec., Dr. C. H. Ewing, Larned.

Kentucky: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

Maine: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Maryland: Baltimore, Dec. 8-11. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

Massachusetts: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

Nebraska: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

Nevada: Carson City, Nov. 2-4. Sec., Dr. Edward E. Hamer, Carson City.

North Carolina: *Endorsement.* Raleigh, Dec. 7. Sec., Dr. John W. MacConnell, Davidson.

Ohio: Columbus, Dec. 8-10. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

South Carolina: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

Utah: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

Virginia: Richmond, Dec. 8. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

West Virginia: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

Maine July Report

Dr. Adam P. Leighton, Jr., secretary, Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 7-8, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fourteen candidates were examined, all of whom passed. Three physicians were licensed by reciprocity with other states, and one by the endorsement of credentials. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Boston University Medical School (1928) 82,	(1930)	83, 88
Harvard University Medical School (1925) 88,	(1927)	87
Tufts College Medical School (1911) 81, (1930) 91,	(1931)	82, 85
Columbia University College of Phys. and Surgs	(1925)	85
University of Rochester School of Medicine	(1931)	93
Jefferson Medical College of Philadelphia	(1930)	88
University of Vermont College of Medicine	(1905)	78
McGill University Faculty of Medicine	(1931)	88

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Maryland Medical College	(1900)	New Hamp.
Jefferson Medical College of Philadelphia	(1926)	Penna.
Baylor University College of Medicine	(1924)	Texas

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Harvard University Medical School	(1926)	N. B. M. Ex.

New Mexico April Report

Dr. P. G. Cornish, Jr., secretary, New Mexico Board of Medical Examiners, reports 14 physicians licenced by reciprocity with other states and one by the endorsement of credentials at a meeting held in Santa Fe, April 13, 1931. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine	(1930)	Colorado
Emory University School of Medicine	(1921)	Georgia
Southern Medical College, Georgia	(1895)	Texas
Iowa Medical College, Eclectic	(1884)	Iowa
University of Louisville Medical Department	(1892)	Colorado
University of Nebraska College of Medicine	(1928)	Arizona

Columbia University College of Phys. and Surgs.	(1920)	Connecticut
Western Reserve University Medical Department	(1912)	Ohio
Baylor University College of Medicine	(1926), (1929)	Texas
University of Texas School of Medicine	(1929)	Texas
Medical College of Virginia	(1922)	New York
Licentiate of the Royal College of Physicians, London, and the Royal College of Surgeons, England	(1917)	Ohio
University of Berlin Faculty of Medicine	(1914)	Maine *

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
University of Illinois College of Medicine	(1926)	N. B. M. Ex.

* Verification of graduation in process.

Hawaii July Examination

Dr. James A. Morgan, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, July 13-16, 1931. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Eight candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
College of Medical Evangelists	(1931)	82.8
George Washington University Medical School	(1928)	81.4
Loyola University School of Medicine	(1931)	80.8
Northwestern University Medical School	(1925)	81.2
Indiana University School of Medicine	(1929)	83.3
University of Maryland School of Medicine and College of Physicians and Surgeons	(1929)	76.3
St. Louis University School of Medicine	(1931)	78.9
Jefferson Medical College of Philadelphia	(1929)	80.1

Connecticut Homeopathic Report

Dr. Edwin C. M. Hall, secretary, Connecticut Homeopathic Medical Examining Board, reports one physician licensed without examination, May 25, 1931, by special provision of the medical practice act, and one physician licensed by examination at a meeting held July 14, 1931. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
New York Homeopathic Medical College and Hospital	(1888)	
Hahnemann Med. College and Hospital of Philadelphia	(1929)	81.5

Book Notices

A Study of Hairs and Wools Belonging to the Mammalian Group of Animals, Including a Special Study of Human Hair, Considered from the Medico-Legal Aspect. By John Glaister, Jun., D.Sc., M.D., J. P., Professor of Forensic Medicine, the Medical Faculty, the University of Egypt, Cairo. Publication No. 2. Egyptian University, Faculty of Medicine. Cloth. Pp. 187, with 145 plates. Cairo: Misr Press, 1931.

Until the appearance of this book there was no monograph in the English language which attempted to present the information concerning animal and human hairs with any degree of completeness. Glaister essays to cover the field with a fair degree of success. However, the book leaves much to be desired in organization of material, in completeness and particularly in the quality of the photomicrographs, on which the author depends so much for the illustration of structural details so necessary for the classification and identification of hairs. The author has undoubtedly carried out a great deal of excellent independent research on the structure of hairs of some 150 mammalian species. The material presented apparently represents the results of these studies. It is unfortunate that the author was not familiar with the more recent literature on hairs and textile fibers, for he undoubtedly would have been able to profit by the experiences of Hausmann and other recent workers in improving his own technic. In a bibliography on the subject covering twenty-seven separate papers or books, only two are more recent than 1915.

The organization of the material is ideal for a study of zoological relationships, but cumbersome for consultation in its medicolegal aspects. One is compelled to search through several different sections in order to assemble the information concerning the hair of any one species. The list of animals selected for study is unusually complete. The hairs of many inaccessible animals are described here for the first time. From a practical standpoint, it would have seemed more desirable to pay less attention to such animals as the duck-billed platypus, spiny ant-eater and three-toed sloth in order to devote more space to the more common domestic animals, such as the dog and the goat. The author makes repeated references to hairs and wools as two separate classes but does not adequately explain the basis for his differentiation. The diameter of hairs is not considered to be significant in identification and all hairs are classified into three general groups: bristles, wiry hairs and soft hairs. When the author does speak of hair diameter, he uses unusual terminology; for example, the hairs of the elephant's tail (page 32) are said to be "$\frac{1}{5}$ cmm. in breadth and $\frac{1}{10}$ cmm. in thickness."

The chief fault of the book is the poor quality of the photomicrographic plates, of which there are 110 representing animal hairs and 35 representing human hair. The author (pages 12 and 49) apologizes for the lack of detail in the plates but states that in spite of the apparently poor definition obtained in the photomicrographs they nevertheless showed just as much detail as could be discerned with the microscope. Sometimes the plates are so poor as to fail to disclose structural relationships which are described in detail in the text and said to be demonstrated by that particular photomicrograph (as on page 51 and plate 2). At least half of the 145 plates might have been omitted because of their poor quality. Without the plates the entire presentation could be well condensed into a much smaller space, as the author has already done in his excellent chapter on hairs in "Recent Advances in Forensic Medicine" (Smith and Glaister, 1931), pages 76-98. In spite of its shortcomings, the book is a distinct addition to the scientific literature on the subject of hair.

Die Histogenese ekto-meso-dermaler Mischgeschwülste der Mundhöhle. Ein Beitrag zur Frage der Organisatorenwirkung (Spemann) beim pathologischen Wachstum. Von Prof. Dr. Paul Schürmann, Dr. med. Hans Pflüger und Zahnarzt Dr. Wilhelm Norrenbrock. Paper. Price, 11.50 marks. Pp. 94, with 79 illustrations. Leipzig: Georg Thieme, 1931.

This monograph consists of two discussions: one concerning the origin and relationship of tumors of the tooth forming tissues and tumors of the hypophysis, and a second, having to do with the genesis of the mixed cell tumor of the parotid. In both instances the literature is carefully reviewed, new cases are described and the subject is discussed critically. Two cases of tumors of the hypophysis are presented in which teeth or tooth-like structures were found; the tooth forms pictured resemble those found in compound odontomes and the authors did not find similar instances in the literature reviewed. Eleven cases of mixed cell tumors of the parotid are described in great detail. The authors conclude that the tumors embraced in their discussion arise from ectoderm rather than mesoderm, that squamous cells in the epithelial strands passing from the mouth epithelium to the tooth follicle develop into such various forms of mouth tumors as adamantinoma, odontoma and mixed cell tumor, that the hypophysis tumor in a similar fashion arises from squamous epithelial cells in the embryonic stem of the hypophysis starting from the roof of the mouth, and that, in the mixed cell tumor of the parotid, epithelium is the dominant component and its origin therefore single. Whether or not these conclusions are accepted by the reader, a careful study of this brief report is imperative for those who have any interest in tumors of the mouth or of the hypophysis.

Obstructive Jaundice: Physiologic and Surgical Aspects. By Waltman Walters, M.D., F.A.C.S., M.S. in Surgery, Head of a Section in the Division of Surgery, the Mayo Clinic, Rochester. Paper. Pp. 132, with 44 illustrations. Rochester: Mayo Foundation, [n. d.].

When a surgeon is confronted with a case of obstructive jaundice he has on his hands a disease the surgical relief of which is accompanied by great hazard. The first chapter of this book is experimental and is devoted to calcium metabolism with particular reference to the intravenous use of calcium chloride for the prevention of hemorrhage in jaundiced patients. Ensuing chapters concern the preparation of jaundice patients for operation, biliary calculi producing jaundice, renal and hepatic insufficiency in obstructive jaundice, stricture of the common and hepatic bile ducts with methods for relieving such strictures and plastic reconstruction of these ducts, complications following operations for relief of stricture of the common and hepatic ducts, duodenal fistula following an anastomosis between the biliary and the intestinal tract, cholecystenterostomy for tumors of the head of the pancreas, and the composition and character of bile following relief of biliary obstruction. No problems are more intimately connected with problems of physiology and of chemistry than those dealing with obstructive jaundice. There is no phase of operative surgery that requires such expertness of technic or that so often presents such insurmountable difficulties as plastic repair and reconstruction of the hepatic and common bile ducts. This small monograph represents "all there is" on the subject of obstructive jaundice. It is beautifully illustrated and is a fine piece of work. It is destined to find an important place in the literature of bile tract surgery.

Röntgenkunde in Einzeldarstellungen. Herausgegeben von H. H. Berg und K Frik. Band III: Wilhelm Conrad Röntgen und die Geschichte der Röntgenstrahlen. Von Dr. Otto Glasser. Mit einem Beitrag, Persönliches uber W. C. Rontgen. Von Margret Boveri. Paper. Price, 27 marks. Pp. 337, with 96 illustrations. Berlin: Julius Springer, 1931.

This volume appears at a time when there is renewed interest in the American technical literature in the historical data connected with Roentgen's epochal discovery. Here is a contribution indispensable as a fountain of information to every historically minded member of the profession familiar with the German language. It is of interest to note that the author of this volume is in the United States and connected with the Cleveland Clinic. Time and again biased and unbiased opinions have been expressed on the priority of the discovery. This discussion, covering five pages, therefore is welcome. Some of the photographic reproductions in the volume will be recognized by the reader, since they have appeared in numerous other publications. However, there is a wealth of little known material in both the text and the reproductive parts. One may well muse on the impression which the first x-ray pictures, with which the book is so richly illustrated, must have had on the scientific workers of that period. Not only the medical side but also the industrial phase of the development of x-rays is discussed from the historical point of view. There is also a chapter on the relation of the x-ray industry on patent questions. It is not generally known that the pressure on Roentgen to commercialize his discovery from American and other sources was great, but Roentgen was not the man to yield in such matters. Interesting also is a short illustrated chapter on the humorous side of the discovery as viewed from the standpoint of the populace and the press. Considerable space is devoted to the private life of Roentgen in the chapter written by Margret Boveri. This part is richly illustrated.

Medicina in Nummis. A Descriptive List of the Coins, Medals, Jetons Relating to Medicine, Surgery and the Allied Sciences. By Horatio Robinson Storer, M.D., LL.D. Edited by Malcolm Storer, M.D. Cloth. Pp. 1146, with illustrations. Boston: Wright & Potter Printing Company, 1931.

Numismatics is a subject which has always interested the historically minded, though little has been done to popularize it, even in general fields. The present volume, which was compiled by Horatio R. Storer and edited by his son, Malcolm Storer, both physicians, is an attempt to make a complete descriptive catalogue of "medals relating to physicians, surgeons, veterinarians, dentists, pharmacists, empirics, hospitals, medical colleges and societies, epidemics, sanitation and in fact, everything connected with the medical art." The result is an exhaustive and detailed list of more than 8,000 entries. The arrangement of the volume strikes one as being rather effective. First comes an interesting if somewhat spicy chapter on ancient medical coins. Then follows the catalogue proper, which is divided into personal medals, arranged alphabetically according to the name of the person concerned, and general medals, which are listed under such headings as barber-surgeons, diseases and operations, expositions, hospitals, and medical events, these in turn being classified as to name of person or place concerned. Under each individual entry the compiler gives the name of the medal and the occasion for which it was struck, a description of the contents of both the obverse and the reverse side of the coin, with a note as to its size and the material used in it, and a mention of the most important catalogue or bibliography in which the coin has already been completely described. The appeal of such a bibliography is of course necessarily limited. Numismatists, and medical numismatists in particular, bibliographers, historians and dabblers in medical antiquities or curiosities will find here a wealth of material for their information and delight, to which the exhaustiveness of the study and the excellent bibliography will contribute only advantageously. Because of its completeness and the brevity of its entries, the index should be a valuable guide to the uninformed who are seeking enlightenment on the subject of medical coins and medals. At the risk of being considered a carping critic one must repeat, however, that the book does have a limited appeal. One questions, too, the wisdom of the author's declared intention of making this an exhaustive list. Complete bibliographies are, of course, always desirable—theoretically, at least. But one is moved to wonder, sometimes, whether discrimination is not at least as valuable an attribute as scholarly thoroughness. Entry 5793a is a case in point. "Stiff no. 75," the description reads, "Check for cadaver in anatomy department of University of Michigan." Of course, to be complete the list would have to contain this notice. But it would seem that the cause of medical numismatics would in no wise have been irreparably injured if such entries—and there are many others similar to this one—had been entirely omitted from an otherwise scholarly and informative volume.

The Thomsen Hemagglutination Phenomenon: Production of a Specific Receptor Quality in Red Corpuscles by Bacterial Activity. By V. Friedenreich. Paper. Pp. 138, with 12 illustrations. Copenhagen: Levin & Munksgaard, 1930.

The author has prepared in monographic form an elaboration of the original studies of a peculiar agglutination phenomenon of red blood cells now known as the Thomsen hemagglutination phenomenon. In the first chapter he briefly considers some of the fundamental points concerning hemagglutination. The work then deals with the specific propagative agent discovered by Oluf Thomsen in 1927 that has a characteristic effect on the iso-agglutinability of human blood corpuscles. From the summary of the author's investigation it seems possible that human blood corpuscles of any group may be changed through the influence of a propagative, transmissible agent so that they become agglutinable in any human serum and the serum from the same individual. The general properties of the corpuscles are not changed in the transformation process but differ from normal ones only in the altered agglutinability. As a result of the author's investigations he regards the transformation as an enzymotic process by which a common, serologically nondemonstrable constituent is converted into a substance of specific receptor character. The serologic consequences of the changes are discussed. The work is of exceptional academic interest to those interested in serologic studies. It will also be of great practical interest to those interested in the mechanism of transfusion shock. The author cites reports in the literature and experiences of his own as instances of bacterial transformation as a source of error in blood grouping. Suggestions are offered for the prevention of the transformation and the recognition of the phenomenon when it does occur. The work is written in English, and aside from the slight peculiarities in the author's style it is comprehensive and easy to follow. An excellent bibliography is given covering the phases of the work described in the text.

Eye, Ear, Nose and Throat Manual for Nurses. By Roy H. Parkinson, M.D., Visiting Oculist and Aurist to St. Joseph's Hospital, San Francisco, California. Second edition. Cloth. Price, $2.25. Pp. 223, with 62 illustrations. St. Louis: C. V. Mosby Company, 1931.

This small manual of the eye, ear, nose and throat for nurses consists of a number of chapters presenting the anatomy of the eye, ear, nose and throat followed by a description of the more common illnesses of these regions and ending with directions for setting up instruments and solutions for the various commonly performed operations. This last part is the most valuable, as photographs of the instruments are given and convenient lists are made up. The first part of the book, while excellent, goes into anatomic and medical details which it is not necessary for most nurses to know. These details might be important for nurses expecting to specialize or for those intending to supervise eye, ear, nose and throat operating rooms.

Chirurgie de l'ulcère gastrique et duodénal, (indications, résultats). Par N. *Hortolomei, professeur de clinique chirurgicale,* Faculté de médecine de Jassy, et V. Butureanu, maitre de conférences, Faculté de médecine de Jassy. Paper. Prices, 45 francs. Pp. 407, with 75 illustrations. Paris: Masson & Cie, 1931.

The purpose of the book is to consider the consensus regarding the treatment of gastric and duodenal ulcer in general and from the surgical point in particular. The question of treatment of ulcer is complex. The number of methods proposed is numerous, evidencing the fact that as yet there is no single accepted efficacious mode of treatment. Basing their work on an extensive review of the literature interpreted in the light of their own experience, the authors discuss the indications for surgery and then describe the various methods employed not from the standpoint of technic but from the point of view of the results obtained by each one of these. Medical treatment, according to them, is of questionable value and should not be persisted in too long. The surgical methods considered are classed in two groups, the indirect and the direct. Under indirect methods they class dilation of the pylorus, pyloroplasty, gastroduodenostomy, gastro-enterostomy, pyloric exclusion, cholecystogastrostomy, jejunostomy, and section of the gastric nerves. The direct methods include excision of the ulcer, resection of the lesser curvature, sleeve resection, subtotal gastrectomy and total gastrectomy. The book is written simply, clearly and convincingly. The deductions are logical though colored somewhat by personal experiences. The authors conclude that the last word concerning the surgical treatment of ulcer has not been said. The method which at present offers the greatest guarantee of cure is extensive resection. It gives symptomatic relief and is followed by fewer postoperative complications.

Operative Surgery: General and Special Considerations. By Dr. Martin Kirschner, Professor of Surgery and Director of the Surgical Clinic at the University of Tubingen (Germany). Authorized translation by I. S. Ravdin, B.S., M.D., J. William White Professor of Research *Surgery, University of Pennsylvania. First American edition from second* German edition. Cloth. Price, $12. Pp. 666, with 746 illustrations. Philadelphia: J. B. Lippincott Company, 1931.

This volume is beautifully and completely illustrated. The artistically executed illustrations, most of them in color, supplement the text, making the study of the book a real pleasure. It deals essentially with the principles of surgery on a broad basis and considers primarily those methods which have proved useful in the author's clinic. The general examination of the patient, including the preoperative preparation, the position of the patient on the operating table and the general principles of operative technic, are described in detail. The control of pain by general and local anesthesia is discussed extensively. Control of infection and hemorrhage follows. Operations on the skin, muscles, tendons and fascias, blood vessels, nerves, bones, joints and amputations conclude the text. The book is written clearly and simply. A great deal of credit is due to the translator, who expressed the author's ideas faithfully while avoiding the awkwardness of literal translation. The book will be useful to young surgeons as well as experienced ones, as it contains advice on matters seemingly unimportant as well as on rare and unusual methods.

Kurzes Handbuch der Ophthalmologie. Herausgegeben von F. Schieck und A. Bruckner. Band IV: Conjunctiva. Cornea. Sclera. Verletzungen. Berufskrankheiten. Sympathische Erkrankung. Augendruck. Glaukom. Bearbeitet von E. Cramer, H. Köllner, W. Reis, F. Schieck und R. *Thiel. Paper. Price, 165 marks. Pp. 874,* with 463 illustrations. Berlin: Julius Springer, 1931.

The fourth volume of this short (?) handbook appeared in good time and upholds fully the standards set by the three preceding volumes. Diseases of the conjunctiva, cornea and sclera, occupying the first 432 pages, was written by one of the editors, Schieck of Würzburg. These three chapters are comprehensive and contain the most modern views on classification and etiology. The clinical descriptions, the pathologic details and the illustrations are excellent, but the therapy is not as comprehensive as could be wished for. The bibliography is fairly complete so far as modern German literature is concerned and rather meager otherwise. The next chapter is on injuries and occupational diseases of the eye, by the late Cramer of Cottbus. Of course, any chapter on injuries must consist of merely a compilation of possibilities. The occupational disease section is thorough and well done, embracing conditions that the average ophthalmologist never sees. It is well known that compensation for eye injuries is viewed from an entirely different standpoint abroad than here, but the author has gone into various phases of the subject so clearly that an excellent bird's eye view is at hand. The tables of the American Medical Association are given due credit. This chapter is naturally followed by one on sympathetic ophthalmia by W. Reis of Bonn, who believes in sympathetic irritation. Sixty-eight pages are given to the subject. It is rather interesting to note that the author regards sympathetic papilloretinitis as a clinical entity, entirely separate from sympathetic ophthalmia, a view that is not universally accepted. The last 175 pages are devoted to two chapters on the physiology and pathology of intra-ocular pressure and glaucoma, both by R. Thiel of Berlin. The first chapter is a fairly complete analysis of modern opinions on that as yet undecided question. The second chapter is purely clinical and is a good presentation of the modern concept of glaucoma in all its manifestations. Particularly good is that part dealing with the diagnosis of early simple glaucoma. The therapy is sound common sense, based on modern accepted practices.

A Manual of Clinical Laboratory Methods. By Clyde Lottridge Cummer, Ph.B., M.D., F.A.C.P., Instructor in Dermatology and Syphilology, School of Medicine, Western Reserve University. Third edition. Cloth. Price, $6.75. Pp. 585, with 185 illustrations. Philadelphia: Lea & Febiger, 1931.

Books on clinical laboratory diagnosis are similar in that all of them have chapters on the examination of the blood, feces, stomach contents, urine, sputum, and other subjects, by means of tests which have been acknowledged to be of value in the diagnosis of disease. Cummer has excluded many alternative methods and omitted complete references to the literature in order to keep the book of a convenient size. His style is concise. The many illustrations are excellent. To this edition have been added descriptions of the alcohol test-meal; the cistern puncture; the histamine test for studying the secretion of hydrochloric acid by the stomach; Schilling's simplified method for the Arneth count; the agglutination test for tularemia and undulant fever; the sedimentation of red blood cells; the diagnosis of granuloma inguinale; the Queckenstedt test on the spinal fluid; agranulocytic angina, and others. In addition, some other sections in previous editions have been expanded, such as that on the Kahn test for syphilis, while a section on the Kline reaction has been added.

La culture des tissus en biologie expérimentale. Par Emile C. Craciun, maitre de conférences à la Faculté de médecine de Bucarest. Préface du Professeur G. Roussy. Paper. Price, 55 francs. Pp. 441, with 72 illustrations. Paris: Masson & Cie, 1931.

This is an extensive review, in French, of the methods and accomplishments of the culture of tissues in vitro. It is divided into chapters dealing with the various tissue culture technics, the characteristics of the growth of the four primary tissues in vitro, factors of growth and cytology of cultures, and results of tissue culture as applied to problems of physiology, pharmacology, pathologic anatomy, bacteriology and cancer. There is also a chapter on the cultivation of tissues of lower animals and of plants. In the chapter on technic, the methods for the microscopic examination of the cultures are treated much too briefly. For the most part, however, the work is well done. It is to be recommended for beginners in this field of investigation and should appeal to the average medical worker and biologist who desires information on the accomplishments and the possibilities of tissue culture. By virtue of its broader scope and greater accuracy, this monograph is superior to that of Bisceglie and Juhász-Schäffer in the same field. To the extent that it deals more fully with the results of tissue culture workers in all countries and is not so predominantly a report of the work of one school, this review is better than that of A. Fischer. It does not contain, however, the results of original investigation as does that of Fischer. Perhaps too much prominence is given to the theories of various French investigators and thinkers. In general, the world literature on the subject is covered equitably, although more emphasis might have been given the results of American investigators, for tissue culture is still primarily an American achievement. The monograph is supplied with an extensive bibliography and an index. The only really adverse criticism which might be directed against the book is not based on a lack on the part of the author but is inherent in the subject matter. It is obvious that in a review of the vast fields of the various biologic and medical sciences in which tissue culture has been applied, no single reviewer could be expected to be equally critical throughout. An example of this is to be found, for instance, in the author's misunderstanding of the points of difference in some of the leading theories on the histogenesis of inflammation. Such errors in a review of work in such a vast subject as tissue culture can be obviated only by having specialists in each of the separate fields contribute the discussions on those topics of which they are masters.

A CLINICAL STUDY OF ADDISON'S DISEASE. By Leonard G. Rowntree, M.D., and Albert M. Snell, M.D., Division of Medicine, the Mayo Clinic and the Mayo Foundation, Rochester, Minnesota. Mayo Clinic Monographs. Cloth. Price, $4. Pp. 317, with 41 illustrations. Philadelphia: W. B. Saunders Company, 1931.

This is a detailed discussion of the historical and clinical aspect of Addison's disease, including the more recent methods of treatment with epinephrine and cortical extracts of the suprarenals. The information is complete and the contents of this small volume furnish detailed information of practical value. Case histories and historical data form the bulk of the book. There is sufficient good material, especially of recent interpretation, to make this a valuable book for the general practitioner.

RADIOLOGISCHE PRAKTIKA. Herausgegeben von Prof. Dr. W. Alwens, usw. Band XVII: Röntgendiagnostik der Gallenblase. Von Priv.-Doz. Dr. F. Eisler und Dr. G. Kopstein. Cloth. Price, 18.60 marks. Pp. 153, with 151 illustrations. Leipzig: Georg Thieme, 1931.

This volume, which is one of a series of radiologic handbooks, is an excellent summary of present knowledge concerning the roentgen diagnosis of gallbladder disease. The authors divide the book into two parts, the first of which deals with our knowledge of gallbladder disease before the era of cholecystography. The latter part concerns cholecystography. It is interesting that the authors devote only 4½ pages to the discussion of the roentgen diagnosis before the era of cholecystography, as compared with 128 pages devoted to cholecystography. There is also a short discussion of the physiology and the anatomy of the gallbladder. The illustrations are excellent and the book can be recommended as a satisfactory presentation of modern conceptions of the roentgen diagnosis of gallbladder disease. There is an extensive bibliography and the authors are thoroughly acquainted with the American literature, from the first article by Graham and Cole on cholecystography down through the more recent work.

THE PRACTICE OF MEDICINE. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Third edition. Cloth. Price, $8. Pp. 1150, with 36 illustrations. Philadelphia and London: W. B. Saunders Company, 1931.

Many chapters in this edition have been rewritten and much of the text that was in the previous edition has been deleted, as it was no longer considered in accord with the best modern teaching. Reference has been made for the first time to such new subjects as psittacosis, immunization to measles and scarlet fever, massive collapse of the lung, the antitoxin treatment of erysipelas, vaccinal encephalitis, hyperthyroidism and hypothyroidism. In its present form the book presents a conservative view of the essentials of internal medicine.

DIE CHIRURGIE DES KROPFES. Von Regierungsrat Primarius Dr. Karl Urban, Vorstand der chirurgischen Abteilung und Leiter des Spitales der Barmherzigen Schwestern in Linz a. D. Paper. Price, 6.80 marks. Pp. 85, with 50 illustrations. Leipzig: Franz Deuticke, 1931.

Thyroid surgery in America is concerned chiefly with the surgery of thyrotoxicosis, which condition forms the common indication for surgery in this country, and with which phase of thyroid disease our literature has been almost entirely concerned. Hence it is that virtually no monograph such as this meets the requirement of the average American surgeon. The text is brief and in a sketchy way covers asepsis, anesthesia, indications, technic, complications, malignant conditions, exophthalmic goiter and twelve or fifteen allied topics. The descriptions and illustrations of technic seem inadequate and at best are more readily adapted to the large colloid goiter rather than to the exophthalmic goiter or toxic adenoma.

Medicolegal

Practice of Dentistry by Corporation Unlawful

(State v. Bailey Dental Co. (Iowa), 234 N. W. 260)

The Bailey Dental Company was incorporated under the laws of Iowa for the purpose of equipping and maintaining offices and places where licensed dentists might carry on the practice of dentistry. No officer of the corporation was licensed to practice dentistry in Iowa. The corporation employed licensed dentists, who engaged in the practice of dentistry under the name of the corporation. The attorney general of Iowa instituted a suit in equity to restrain the defendant corporation from practicing dentistry in the state. The district court, Polk County, issued an injunction and the defendant corporation appealed to the Supreme Court of Iowa. There the judgment of the district court was affirmed.

The corporation contended that it was not engaged in the practice of dentistry; that its sole business was owning and operating offices in which the art of dentistry was practiced by duly licensed dentists. The practice of dentistry, argued the corporation, and the owning and operating of dental offices where dentistry is practiced, are two distinct functions. Answering these contentions, the Supreme Court of Iowa said that immediately on its incorporation the defendant corporation opened an office in the city of Des Moines and equipped an office for the purpose of practicing dentistry. It employed licensed dentists for its work. It advertised the practice of dentistry under its corporate name and not otherwise. The ownership and control of the entire equipment was in the corporation and its unlicensed officers, and not in the employees who were licensed dentists. These unlicensed officials necessarily determined all its policies, said the court, whether they were professional or commercial. If such officials were to carry on a similar business as individuals, without the formality of a corporate organization and without a license, they would be amenable to the dental practice act. If these officials could not, continued the court, as individuals, conduct this business without a license, there is no reason why they should be permitted to do so under a corporate name. If a business conducted by an individual is unlawful, it is likewise unlawful if conducted by a corporation.

It was argued by the corporation, however, that the dental practice act constituted an unreasonable interference with the natural right of the defendant to do business. This is not a case, said the court, where new legislation purports to take away rights that have been acquired and have vested under previous legislation. It is therefore not a case of legislative impairment of existing contracts. The corporation contended that its charter authorized it to transact the very business for the doing of which it was being prosecuted. The recitals of the articles of incorporation, observed the court, define the limitations of the business which the corporation proposes to do. These recitals did not confer on the corporation authority to transact any business in violation of existing law. Under the law existing when the corporation received its charter, said the court, no person had a right to practice dentistry without an examination and license. From the very nature of this statutory requirement, a corporation could not bring itself within the terms of the statute. It could not pass an examination and could not therefore obtain a license. There are certain fields of occupation which are universally recognized as learned professions. Proficiency in these occupations requires long years of special study and training. Without such preparation, proficiency is impossible. The law recognizes them as a part of the public weal and protects them against debasement and encourages the maintenance therein of high standards of education, of ethics and of ideals. Rigid examinations are required and conducted preliminary to the granting of a license. The act could be completely avoided and rendered nugatory, observed the court, if one or more persons, who failed to have the requisite learning to pass an examination, might nevertheless incorporate and practice lawfully the profession which was forbidden to them as individuals. A corporation, as such, has neither education nor skill nor ethics.

We deem it clear, concluded the Supreme Court, that the defendant corporation was practicing dentistry within the meaning of the dental practice act of Iowa. It was necessarily doing so without a license. It was doing so therefore in violation of the law. Inasmuch as a corporation, by its very nature, is incapable of passing an examination for the purpose of a license, and therefore incapable of receiving a license, it cannot lawfully practice dentistry in Iowa.

Evidence: Fragments of Fractured Skull in Evidence; Admissibility of Hospital Records.—The plaintiff's skull was crushed in an automobile accident. Eight pieces of splintered bone were taken from the brain and were placed in a small bottle by the operating surgeon. In a suit by the plaintiff to recover damages for her injuries, the operating surgeon testified that he did not recall definitely how many pieces of bone he removed from the plaintiff's brain. He then produced, apparently to refresh his memory, the bottle in which he had placed the fragments of the skull. The bottle was later admitted in evidence, over the objection of the defendant. The plaintiff claimed that the offering of the exhibit was for the purpose of establishing the number of bone pieces removed from the brain, the operating surgeon not being able to testify definitely from memory in that regard. The bottle was a small one, said the Supreme Court of Minnesota, and the exhibit was not of a gruesome nature. No error was committed in admitting the bottle in evidence. The plaintiff's hospital chart also was admitted in evidence. The operating surgeon identified it as the original hospital chart made and kept in the plaintiff's case. He testified that it was a record of what had transpired during the various hours of each day and that it contained statements as to the temperature, pulse, and other incidental matters relative to the patient's condition and treatment. The entries were made by two special nurses in the usual course of the hospital business. He testified that such a hospital record was made for every patient in the hospital and that the entries therein were true and correct. The defendant contended that no proper foundation had been laid for the admission of this hospital chart, that it was a self-serving declaration on the part of the plaintiff and was hearsay. The trial court, in admitting the chart, said that it was doubtful if there was anything in it not covered by the testimony of witnesses. Under these circumstances, said the Supreme Court of Minnesota, the chart was properly admitted in evidence.—*Lund v. Olson (Minn.), 234 N. W. 310.*

Damages: Release Based on Physician's Opinion.—The plaintiff fell down the steps of one of the defendant's street cars and suffered an injury. He employed his own physician to treat him. This physician informed the plaintiff that he would be in bed from four to five weeks, if not longer, and then would have to wear a strap or brace for his back. A physician for the defendant street railway company later examined the plaintiff and informed him that there was nothing much the matter with him and that he would be all right in a few days. After some dickering, the plaintiff accepted a cash settlement as compensation for his injuries and signed a release absolving the defendant from further liability. Later he sought to have this release set aside, contending that it had been executed on the strength of the statement of the defendant's physician that he, the plaintiff, would be all right in a few days. But, said the Supreme Court of Minnesota, the plaintiff had been informed by his own physician that he would be confined to his bed for five weeks or longer and he must therefore have known at the time he gave the release what his injury was and its probable result. Reliance on the opinion of the defendant's physician, who saw the plaintiff only once and did not treat him, was not a sufficient ground for avoiding the release. If false representations as to the character and extent of a plaintiff's injury are made by a physician or agent of the other party, for the purpose of inducing a settlement, and such representations cause the plaintiff to be deceived regarding existing facts as to the nature and extent of his injury, he may avoid a release given in reliance thereon, notwithstanding the good faith of the one making the representations. But if the representations made are correct as to the nature and extent of the injury, or if the plaintiff is not deceived thereby, the fact that an opinion as to the duration of the disability, honestly given, turns out to be erroneous, is not a sufficient ground for avoiding the release.—*Fornaro v. Minneapolis Street Ry. Co. (Minn.), 234 N. W. 300.*

Medical Practice Acts: Due Process in Revocation Proceedings; Prior Court Conviction Not Necessary.—In revoking a physician's license, the Michigan state board of registration in medicine is not required to proceed in strict accordance with rules applicable to judicial tribunals. Requisite proof may be had by deposition. The right to compulsory process is not indispensable. Unless the right is waived, the physician whose license is sought to be revoked is entitled to (1) notice of the time and place of hearing; (2) a hearing before a properly authorized body; (3) a reasonably definite statement of the charge or charges against him; (4) the right to cross-examine the witnesses who testify against him; (5) the right to produce witnesses in his own behalf, and (6) a full consideration and a fair determination according to the evidence by the body before whom the hearing is had. Where there is no demand for an opportunity to cross-examine a witness, the sworn statement of such witness is competent to establish the charge against the physician. It is not necessary that a physician be first convicted in a court of criminal jurisdiction before the board may institute proceedings to revoke his license. The medical practice act of Michigan specifies that the board shall consist of ten members, composed of not more than five members representing the regular school of medicine, not more than two representing the homeopathic school, not more than two representing the eclectic school, and not more than one representing the physiomedical school. The fact that the board is composed of seven members of the regular school, two of the homeopathic, one of the eclectic and none of the physiomedical does not nullify the action of the board in revoking the license of a physician. The board, so constituted, is, in the opinion of the Supreme Court of Michigan, a de facto board.—*Hanson v. Michigan State Board of Registration in Medicine (Mich.), 234 N. W. 476.*

Workmen's Compensation Acts: Refusal to Undergo Operation.—Where an employee, seeking compensation under the workmen's compensation act of Oklahoma, unreasonably refused to undergo a minor operation, simple, safe, and reasonably certain to effect a cure, the continuing disability suffered by the employee is held to result not from the original injury but from his own wilful act. Whether or not such a refusal is unreasonable presents a question of fact to be determined from the evidence. The burden of proving that the tendered operation is simple, safe, and reasonably certain to effect a cure, is on the employer. A court will not speculate, said the Supreme Court of Oklahoma, as to what might be the outcome of an operation.—*Consolidated Lead and Zinc Co. v. State Industrial Commission (Okla.), 295 P. 210.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Chicago, October 29-31. Dr. E. D. Plass, University Hospital, Iowa City, Sec'y.

New York State Association of Public Health Laboratories, Albany, November 6. Miss M. B. Kirkbride, New Scotland Avenue, Albany, Secretary.

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

1: *277-354* (July) 1931

Pathologic Anatomy as Keystone of Practice of Clinical Pathology. K. M. Lynch, Charleston, S. C.—*p. 277.*

*Comparison of Different Culture Methods for Isolation and Growth of Myobacterium Tuberculosis: Experimental Study. S H. Feldman, Rochester, Minn.—p. 285.

*Comparison of Culture and Animal Inoculation of Sputum in Diagnosis of Tuberculosis. A. Stadnichenko and H. C. Sweany, Chicago. —p. 303.

Cholesterol Equilibrium in Light of Some Recent Studies. A. T. Brice, Jr., Palo Alto, Calif.—*p. 315.*

*Glycerin as Adjuvant to Bacterial Dyes. F. M. Huntoon, White Haven, Pa.—p. 317.

*Pathogenesis of Goiter. B. Markowitz, Bloomington, Ill.—p. 321.

Antirabic Vaccinations at Charity Hospital of New Orleans for the Years 1929-1930. R. D'Aunoy and J. L. Bevan, New Orleans.—p 333.

*Degenerative Lesions of Appendix (Appendicosis) Hitherto Undifferentiated from Appendicitis. B Steinberg, Toledo, Ohio.—p. 339.

Growth of Mycobacterium Tuberculosis.—Feldman compares the efficiency of different cultural procedures for the demonstration of Mycobacterium tuberculosis in infective material. A total of twenty-seven specimens of human origin and nineteen specimens of bovine origin was utilized. The culture mediums used were the crystal violet-glycerin-water-potato medium of Corper and Uyei; the egg yolk-glycerin-broth medium of Miraglia and a slight modification of the meat-cream-milk-egg combination of Sweany and Evanoff. Five per cent oxalic acid solution and 3 per cent sodium hydroxide solution were used to control contaminants. Portions of the material used for the cultural attempts were also used to inoculate guinea-pigs and a slightly higher percentage of positive results were obtained from the animal inoculations than from the respective culture mediums. The modified medium of Sweany and Evanoff yielded a greater number of positive results from both the human and the bovine material. In most instances the medium of Miraglia, which was inoculated with the human material, promoted the growth of acid-fast bacilli earlier than the other mediums used.

Sputum in Diagnosis of Tuberculosis.—Stadnichenko and Sweany made a comparative study of microscopic sputum examinations, with guinea-pig inoculation and culture, on selected series of 200 patients, 49 of whom were children under 15 years of age. Twenty-four hour sputum specimens were used for the experimental work and treated with 3 per cent solution of sodium hydroxide. Half were inoculated into a guinea-pig, and half were cultured on the cream medium of Sweany and Evanoff. This series was divided into four groups, based on cultural and animal observations. The first, or largest, group consisted of 131 patients, found negative both on guinea-pig inoculation and on culture. The second, which consisted of thirty-three patients, was found positive both on guinea-pig inoculation and on culture. The third group, which consisted also of thirty-three patients, was found positive on guinea-pig inoculation only. The last, or fourth, group, which consisted of three patients, was found positive on culture only. The experimental work gave sufficient data to indicate that guinea-pig inoculation was superior to the cultural method for badly contaminated material, but culture study has the advantage of being more absolute, more inexpensive, and permitting of more repetitions. Atypical acid fast bacilli should be carefully considered but only as suspicious forms until they have produced typical tuberculosis in animals.

Glycerin as Adjuvant to Bacterial Dyes.—Huntoon calls attention to the fact that in every laboratory where bacterial staining is a routine procedure, and particularly in those laboratories where such staining is only an occasional necessity, annoyance has been caused by the tendency of certain prepared dye solutions to deteriorate and to precipitate either on the slide or in the bottle. This is especially annoying in the dyes used to perform the gram stain. In a search for dye solutions that would not have these characteristics, he tried glycerin as an adjuvant. This substance in the proper strength acts as a preservative in helping to keep the dyestuffs in solution and apparently as a mordant in increasing staining values, and aids by clearing up the background, giving sharp and clear microscopic pictures. The author gives the composition of three stains (glycerin crystal violet gram, glycerin carbolfuchsin, glycerin methylthionine chloride) with which he has obtained excellent results.

Pathogenesis of Goiter.—Markowitz believes that colloid nodular goiters or so-called colloid adenomas are the results of degeneration dependent on hyperplasia followed by involution and hyperinvolution; that the so-called toxic adenomas differ only from the nontoxic colloid nodular goiter in that they contain areas of hypo-involution, in which hyperplasia was not followed by involution; that the so-called toxic adenomas are frequently not toxic per se, in which case they are pathologically the same as the nontoxic type, but are associated with hyperplasia in a separate portion of the thyroid not included in the encapsulated nodule. Further, it is highly probable that similar factors are involved in the production of both hyperplastic and colloid types of goiter; that the simple colloid goiter is only an end result of hyperplasia which is mild and not rapid in its course; that the nodular colloid goiter is of similar origin, but differs in that the hyperplasia-involution cycle occurred only in certain areas; that the toxic nodular colloid goiter or toxic adenoma is also of the same origin, but here while the hyperplasia-involution cycle occurs there are a few areas of hypo-involution in which hyperplasia persists; that the true hyperplastic or exophthalmic goiter is one in which there is marked rapid and unarrested hyperplasia not followed by any form of involution.

Degenerative Lesions of Appendix.—Steinberg observed certain abnormal changes in some which ordinarily are classified by the pathologist as normal, although the clinician observed in the patient signs and symptoms which were relieved by appendectomy. These observations prompted a systematic study of 1,500 surgically removed appendixes. The study included the correlation in a selected number of cases of the clinical history, the pathologic changes, the bacteriologic examination of the appendical contents and a follow-up of the patients' condition a year or more after the appendectomy. As a result of the study, a group of appendixes in which inflammation played no part in the pathologic picture was differentiated. The abnormal changes were retrogressive and degenerative in character and terminated in death of tissue. The term appendicosis is proposed by the author to designate the pathologic changes in these appendixes. Two types of appendicosis were distinguished. The first, essentially retrogressive in nature, is characterized by a diminished width of the mucosal layer of the organ, a compression of lymph follicles, a general decrease in the number of mucosal cells and an increase in fibroblasts. Frequently, the usual lining columnar cells are replaced by either cuboidal or flat epithelial cells. The muscularis may participate in the general diminution of the width of the organ. The lumen of the organ is dilated and almost invariably contains large amounts of fecal material. Occasionally, proximal to the dilated part of the organ there is narrowing or complete stenosis of the lumen. For this type of appendicosis the term pressure atrophy is proposed. Apparently the pressure atrophy type of appendicosis is due to the failure of the appendix to expel the fecal contents properly, which continue to accumulate and result eventually in the compression of the wall of the organ. The second type of appendicosis is degenerative in character and is distinguished by the tendency of formation of erosions. A small area of the lining cells and the mucosa is destroyed and replaced either by blood in lesions of recent origin and by feces or by connective tissue in lesions of longer duration. These erosions frequently extend through the entire width of the mucosa to the submucosa. The erosions may be single or multiple. In comparatively old lesions the eroded area is surrounded by free and phagocytosed hemoglobin particles. Not infrequently the same appendix may show, in other places, evidences of pressure atrophy. The lymph follicles are usually hyperplastic with large and active germinal centers, especially in early lesions. There is frequently an increase of eosinophils and large mononuclears in the mucosa surrounding the erosion. The tubular glands show moderate secretory activity. The lumen in the location of the eroded area may be very narrow but is occasionally wide. The erosion is most frequently located at the base of a crypt. Erosion type of appendicosis is the term proposed for this form of appendiceal lesion. It is the author's opinion that the erosion type of appendicosis is produced by sharp particles of feces and that the lack of an inflammatory reaction is due either to absence of bacteria or to presence of avirulent organisms.

American J. Obstetrics & Gynecology, St. Louis

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Tuberculous Abscess of Brain: Case. G. F. Evans and C. E. Smith, Hopemont, W. Va.—p. 292.
*Old Tuberculin Administered Subcutaneously for Diagnosis. J. Steidl and F. H. Heise, Trudeau.—p. 300.
*Reliability of Guinea-Pig Inoculation in Diagnosis of Tuberculosis. W. H. Feldman and T. B. Magath, Rochester, Minn.—p. 312.
*Influence of World War on Tuberculosis Mortality in Civilian Populations. W. W. Lee, North Adams, Mass.—p. 326.
"Insusceptible Strains" in Epidemiology of Human Tuberculosis. H. W. Hill, Vancouver, B. C.—p. 340.
Distribution of Diffusible and Nondiffusible Calcium in Pulmonary Tuberculosis. F. B. Cooper, Trudeau.—p. 346.
*Lysis of Tubercle Bacilli in Sputum. L. Rosenthal, Brooklyn, and Vera B. Dolgopol, New York.—p. 351.
Attempt to Grow Paramecia in Pure Cultures of Tubercle Bacilli. A. P. Damerow, Denver.—p. 363.
Summer Rest Camp of Dallas Tuberculosis Association. R. M. Smith, Dallas, Texas.—p. 367.

Intrapleural Pneumolysis.—Carter describes a method of freeing adhesions by an open pneumolysis. Reports of four cases in which this method has been successfully used are given. Open pneumolysis is preferable to closed in case of wide bands, folds, and thick fleshy, round adhesions. Closed pneumolysis is difficult and least successful in these types of adhesions but the latter may be more safely divided by the open method. In any case, save possibly those with thin string adhesions, the author prefers the open to the closed method. It seems safer to deal with adhesions directly than to divide them through a thoracoscope in which one has less control of the situation in case of hemorrhage and more chance of soiling by contamination due to cutting into the lung.

Intrapleural Pneumolysis.—Fisher states that of the pneumothorax patients residing at Waverley Hills Sanatorium since July, 1930, 28.6 per cent proved suitable for cauterization. Of this number all but one has been definitely benefited by the intrapleural pneumolysis. Ten out of sixteen (62.5 per cent) were given a perfect collapse. In all cases with pulmonary excavation the cavities have contracted anywhere from one half to completely. Closure of cavities was brought about in nine cases. In three cases, open cavities could not be seen before operation. In two cases, complete closure of cavities, after a marked initial contraction, has been impeded by sufficient mediastinal shifting, following severance of adhesions, to prevent otherwise adequate compression. In one case, however, this otherwise undesirable circumstance served to help close a cavity in the contralateral lung. One patient, who had had persistent recurrence of blood-streaked sputum for three years, has not had streaking since the second pneumothorax refill following pneumolysis. The majority of patients have shown a tendency for the sputum to become negative, with occasionally an intermittent positive. Nine have had a persistently negative sputum since operation. All patients with positive sputum have shown a decrease in the number of bacilli, according to the Gaffky scale. A number of these have bilateral disease, which may account for some failures to obtain a completely negative sputum. All patients have voluntarily noted a marked diminution in both coughing and the daily quantity of sputum. Coughing has practically disappeared and sputum has decreased at least 75 to 80 per cent in the majority of cases. Even when cavities have been only partially collapsed, marked symptomatic improvement has been the rule. A small postoperative effusion, averaging about 250 cc., developed in five cases. After a single aspiration this did not recur except in one case. One patient had fluid prior to operation, which persisted afterward. In nine cases no postoperative effusion whatever occurred. In one case a preexisting pleural effusion which had persisted for several months disappeared entirely after operation, apparently as a result of loss of tension on adhesions. One patient who had had a preexisting tuberculous empyema for some months passed an uneventful postoperative course with perfect wound healing and as decided improvement as any case in this series. As in all forms of collapse therapy, tuberculous complications show a greater tendency to improve when the pulmonary disease has been benefited by adequate compression. Patients tolerate cauterizations lasting as long as two and one-half hours remarkably well, ensuing reactions being negligible. Bleeding other than momentary oozing was not encountered except in one case. In this instance, cautery irradiation produced prompt cessation. Diffuse, multiple folds constitute the type of adhesion most apt to contain lung tissue or large blood vessels. Occasionally, when only partial cauterization is possible, in the form of a V-notch extending toward the chest wall, subsequent pneumothorax refills may serve to peel the lung away from the parietal attachment. Complete stripping of this nature occurred in the second case reported, this patient having had a perfect collapse and negative sputum ever since. The galvanocautery affords a reasonable and safe method for cutting adhesions. Intrapleural pneumolysis is a necessary adjunct to artificial pneumothorax.

Bilateral Postpartum Phrenicectomy.—Duryea emphasizes the fact that during the later months of pregnancy diminished diaphragmatic excursion, because of the increasing intra-abdominal tumor, has a distinct therapeutic advantage. Too often, after delivery of the child, in cases of far advanced pulmonary tuberculosis, the advantage of the diminished diaphragmatic excursion is lost and a slightly progressive pulmonary lesion advances with great rapidity. Bilateral phrenic exeresis immediately after delivery of the child not only prevents this descent of the diaphragm but even causes more elevation with corresponding beneficial results. The author gives the case report of a pregnant tuberculous invalid who was carried along for the last three months of her pregnancy on simultaneous bilateral pneumothorax, which gave her almost complete symptomatic relief from her pulmonary tuberculosis. Following delivery, a bilateral phrenic exeresis was done in order that the benefit of diminished excursion from intra-abdominal tumor might not be lost. Bilateral phrenic exeresis, immediately post partum, seems a rational treatment for a pregnant woman with advanced active bilateral tuberculosis.

Massive Atelectasis.—Korol calls attention to the fact that in prolonged dorsal recumbency the occurrence of atelectasis is favored by the poor ventilation in this position (a decrease in the tidal air and vital capacity) and the inactivity of the diaphragm. Many cases diagnosed as terminal bronchopneumonia and hypostatic congestion are really instances of atelectasis. In prolonged lateral recumbency the occurrence of atelectasis is favored in the recumbent lung by the increased weight and compression exerted on the lower hemithorax and the inactivity of the lower half of the diaphragm. The various pathologic states which confine a patient to one certain posture in bed generally also interfere with vigorous respiration and coughing. Surgical operations on the chest or abdominal wall further reduce the respiratory efficiency by injuring the muscles of respiration and by causing pain on deep breathing and on turning from side to side. Occlusion of a large bronchus is not necessary for the initiation of atelectasis or for the development of the typical symptoms of dyspnea, cyanosis, efforts at expectoration and so on. Massive atelectasis can occur without the occlusion of large bronchi. The respiratory distress in such cases is caused not only by the depleted lung reserve but largely by the vicarious breathing from one lung into the other. In cases with occlusion of a large bronchus, the symptoms are precipitated by the overflow of secretions from the lower lobe bronchus into an upper lobe bronchus.

Old Tuberculin Subcutaneously.—According to Steidl and Heise, the fact that a patient has no symptomatic reaction and no focal reaction (as determined by physical signs and roentgenograms) to 0.01 cc. of old tuberculin administered subcutaneously does not exclude the diagnosis of tuberculosis. Conversely, it may occasionally happen that the natural evolution of a neoplastic or a nontuberculous inflammatory process in the lung may simulate a focal reaction. The administration of old tuberculin subcutaneously as a diagnostic method in suspected pulmonary tuberculosis is a procedure of limited value, for the intracutaneous test gives somewhat parallel information and is less inconvenient to the patient.

Reliability of Guinea-Pig Inoculation.—For the purpose of determining facts pertaining to the reliability of the guinea-pig as a test animal in the diagnosis of tuberculous infections of obscure nature, Feldman and Magath make use of clinical material from 158 consecutive clinical cases. One guinea-pig was inoculated intraperitoneally and one was inoculated subcutaneously, with a portion of each specimen. A diagnosis of tuberculosis was obtained in twenty-one cases. The livers and spleens of 201 guinea-pigs which were considered nontuberculous at necropsy were prepared for histologic study, and lesions bearing some resemblance to those of tuberculosis were present in seventeen, although none had been thought to be tuberculous on gross examination. None of the tuberculous-like lesions were subsequently proved to be tuberculous when sections were appropriately stained and examined for the bacillus of tuberculosis. Apparently there are other infections, many of them of spontaneous origin, which occasionally induce in guinea-pigs organic lesions which more or less resemble tuberculosis. The failure to demonstrate acid-fast bacilli in suggestive tuberculous lesions of guinea-pigs is presumptive evidence that the lesions are not those of tuberculosis. Inoculating guinea-pigs subcutaneously and intraperitoneally with clinical material and performing necropsy on those which are living at the expiration of eight weeks is a thoroughly dependable procedure for the determination of tuberculous infections in material in which the organism cannot be demonstrated microscopically. Animals living eight weeks after inoculations and failing to show gross lesions of tuberculosis in all probability do not have a tuberculous infection, and the microscopic examination of such tissues as a routine is not necessary. In the microscopic diagnosis of tuberculosis from the tissues of guinea-pigs that die after inoculation of material containing the human form of the infection, too much reliance should not be placed on the cellular aspects of the lesions. The presence or absence of acid-fast bacilli within the lesions constitutes the most dependable criterion for reaching a decision.

World War and Tuberculosis Mortality.—Lee studied the influence of war on tuberculosis mortality on the basis of the experience of Germany and the United States as recorded in their tuberculosis mortality rates from 1900 to 1928. Massachusetts data are used to compare with German data by age groups and by sex. The rates in the United States rose slightly but significantly during the war period and fell rapidly after the armistice to a rate about 20 per cent below the prewar trend. The German rates in 1918 exceeded those of the United States by 55 per cent. Following the war the rates dropped rapidly until 1921, to rise again during the financial crises of 1922 and 1923 to a rate 62 per cent greater than that of the United States in 1923. Following 1923 the German rates fell to the prewar trend by 1927. The peak in the German data in 1918 corresponds to the industrial activity and financial depression of the period. The peak of 1923 corresponds to the financial depression accompanying the inflation of the German mark. The fall in rates following 1923 coincides with the financial recovery in Germany. The available data do not indicate that the influenza epidemic of 1918 exerted much, if any, influence on the tuberculosis mortality. Germany apparently lost approximately 280,000 civilians from tuberculosis, more than probably would have died had the war not occurred. The excess tuberculosis mortality in the civilian population in Germany, due to the war and postwar period 1914-1927, was equivalent to the total tuberculosis mortality in Germany for five years at the rate prevailing in 1928. For every 10.6 German military casualties during 1914 there was one German civilian who died of tuberculosis who probably would not have died had the war not occurred.

Lysis of Tubercle Bacilli in Sputum.—Rosenthal and Dolgopol describe experiments from which they conclude that tubercle bacilli may undergo lytic changes in the sputum if the specimen is allowed to stand for a few days before examination. A certain degree of lysis may occur at room temperature. At 37 C. the lysis becomes evident after ten days, following an initial increase in the number of tubercle bacilli. The optimum for the lysis is at 48 to 60 C. The concomitant flora of the sputum does not affect the staining ability of the tubercle bacilli. The lytic agent is probably the product of autolysis of the leukocytes.

Delaware State Medical Journal, Wilmington

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Florida Medical Association Journal, Jacksonville

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Johns Hopkins Hospital Bulletin, Baltimore

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Reflections on Relation of Curriculum to Certain Problems in Medical Education. A. R. Rich.—p. 121
Influence of Dehydration on Phenomena of Anaphylaxis in Guinea-Pigs. M. I. Rubin, Baltimore, and C. E. Kellett, London.—p. 170.
Presentation of Portrait of Dr. Henry M. Thomas. L. F. Barker, Baltimore.—p. 181.
*Diabetes Mellitus and Pregnancy. C. H. Peckham, Baltimore.—p. 184.

Diabetes Mellitus and Pregnancy.—From a study of seventeen pregnancies in twelve diabetic women, Peckham concludes that diabetes may become somewhat aggravated during the first two thirds of pregnancy, but a definite improvement is to be expected as the patient approaches term. Death of the fetus in utero may result in an immediate break of the diabetes from control. The course of labor in such patients is not unfavorable and the puerperium seems to present no particular danger. A hypoglycemia during the early puerperium may become evident. The improvement noted during the last part of pregnancy may persist for some weeks or months after delivery. The duration of such improvement is often coincident with lactation, and nursing may be safely continued as long as possible. Toxemia is a frequent complicating factor. The outcome to the child is not unfavorable. Under careful supervision there seems to be no reason why the average diabetic woman should not pass through a restricted childbearing career with a reasonable degree of safety.

Journal of Comparative Neurology, Philadelphia

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Medical Journal and Record, New York

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Lupus Erythematosus: Clinical Study with Histopathologic Findings. N. B. Heller, Newark, N. J.—p. 231.
Electrolysis in Skin Disorders: Indications, Contraindications and Technic. G. M. Lewis, New York.—p. 234.
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New Jersey Medical Society Journal, Orange

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Diabetes Mellitus and Thrombo-Angiitis Obliterans in Same Patient. H. S. Davidson, Atlantic City.—p. 570.
Review of Recent Literature on Thrombo-Angiitis Obliterans with Report of Advanced Case. M. Gross, Long Branch.—p. 571.

28: 603-678 (Aug.) 1931

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New Orleans Medical and Surgical Journal

84: 163-226 (Sept.) 1931

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New York State Journal of Medicine, New York

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Ohio State Medical Journal, Columbus

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Public Health Reports, Washington, D. C.

46: 1981-2040 (Aug. 21) 1931

Public Health Service in Knox County, Tenn., Fiscal Year July 1, 1929-June 30, 1930. J. W. Mountin.—p. 1981.
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46: 2093-2159 (Sept. 4) 1931

Expansion of Investigations on Tick-Borne Diseases by United States Public Health Service. R. R. Spencer.—p. 2097.
Survey of Work of Employees' Mutual Benefit Associations. D. K. Brundage.—p. 2102.

South Carolina Medical Assn. Journal, Greenville

27: 193-215 (Aug.) 1931

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Southwestern Medicine, Phoenix, Ariz.

15: 343-396 (Aug.) 1931

Foreign Bodies in Air and Food Passages. W. E. Vandevere, El Paso, Texas.—p. 343.
Bronchoscopic Diagnosis and Treatment, Including Foreign Bodies. C. W. Brown, San Diego, Calif.—p. 346.
Prenatal Care. R. K. Smith, Tucson, Ariz.—p. 355.
Birth Injuries in the New-Born: Especial Reference to Intracranial Hemorrhage. F. B. Sharp, Phoenix, Ariz.—p. 357.
Sudden Death After Spinal Anesthesia (Sensitization Phenomenon and Adrenalin Suspected as Being Cause; Case Reported in Which Convulsion Followed Use of Adrenalin). O. H. Brown and L. C. Barlow, Phoenix, Ariz.—p. 363.
Tetanus Following Hemorrhoidectomy. E. E. Priego, Nogales, Sonora, Mexico.—p. 364.
Trauma to Kidney. A. W. Multhauf, El Paso, Texas.—p. 365.
County Health Unit. J. R. Scott, Albuquerque, N. M.—p. 366.
Sanitation in Automobile Camps. P. S. Fox, Santa Fe, N. M.—p. 369.
Summary of Malaria Control Work in Dona Ana County, New Mexico. C. W. Gerber, Las Cruces, N. M.—p. 370.

Surgery, Gynecology and Obstetrics, Chicago

53: 273-432 (Sept.) 1931

Lesions of the "Isthmus" (Pars Interarticularis) of Laminae of Lower Lumbar Vertebrae and Their Relation to Spondylolisthesis. F. A. Chandler, Chicago.—p. 273.
*Experimental Obstruction of Terminal Duodenum and Ileum: Importance of Blood Chemical Changes in Causing Death. R. Elman and A. F. Hartmann, St. Louis.—p. 307.
*Anomalies of Intestinal Rotation: Two Cases. H. E. Haymond and L. R. Dragstedt, Chicago.—p. 316.
*Effect of Anesthesia on Blood Sugar Content: Experimental Investigation. E. C. Mekie, Edinburgh, Scotland.—p. 329.
*Etiology of Endometrial Hyperplasia. J. C. Burch, W. L. Williams and R. S. Cunningham, Nashville, Tenn.—p. 338.
Surgical Management of Intrathoracic Goiter. F. H. Lahey, Boston.—p. 346.
Modification of Rotation Arthrodesis of Knee (Roeren). J. E. Milgram, Iowa City.—p. 355.
Carcinoma of Both Kidneys: Case with Review of Literature on Multiple Primary Malignant Tumors. H. L. Sanford, Cleveland.—p. 360.
Modified Technic for Spinal Fusion. A. Gibson, Winnipeg, Canada.—p. 365.
Correction of Deformity as Routine Procedure Before Stabilization Operations of Lower Extremity. E. Hauser, Chicago.—p. 369.
*Thyroidectomy for Thyrotoxicosis in the Young: Twenty-Six Cases Between Ages of 8 and 16 Years. E. I. Greene and J. M. Mora, Chicago.—p. 375.
Lumbosacral Spina Bifida Occulta. R. J. Dittrich, Wichita, Kan.—p. 378.
Results in Relation to Site of Amputation in Thrombo-Angiitis Obliterans. C. F. Burke and H. W. Meyerding, Rochester, Minn.—p. 389.
Necrotic Edema of Gallbladder. A. S. Lobingier, Los Angeles.—p. 395.

Obstruction of Duodenum and Ileum.—In an attempt to evaluate the blood chemical change as a factor in causing death in high and low intestinal obstruction, complete fistula or obstruction was created by Elman and Hartmann in six dogs at the terminal duodenum, and in seventeen at the ileocecal junction. Changes in blood serum, concentration of chloride, carbon dioxide content, protein, inorganic phosphate, lactic acid, total base, water content, and nonprotein nitrogen were followed, and the following conclusions were drawn: 1. The principal cause of the rapid death which follows high obstruction (or fistula) in the terminal duodenum is to be found in the chemical changes in the body fluids, resulting primarily from loss of gastro-intestinal secretions, and, secondarily, from circulatory and renal insufficiency due to dehydration. 2. Death following low (ileocecal) intestinal obstruction is not, except in rare instances, due to such changes. It is not necessarily due, moreover, to gangrene or necrosis of the obstructed intestine. 3. Blood chemical examination cannot be relied on as a measure diagnostic either of the site or presence of intestinal obstruction. Its chief value is that it enables one to determine the extent of loss of gastro-intestinal secretions, and the adequacy of treatment designed to restore such loss.

Anomalies of Intestinal Rotation.—Haymond and Dragstedt report two cases of anomaly of intestinal rotation. One case which formerly would probably have been considered an intra-abdominal hernia was more logically explained on the basis of malrotation of the midgut loop in the second stage of rotation. A case of chronic volvulus neonatorum is described. Reports of thirty-three additional cases (including a case observed by the authors) are collected from the literature, bringing the total number of cases of anomaly in the second stage of rotation to 100.

Effect of Anesthesia on Blood Sugar Content.—Mekie describes experiments on rabbits, from which he concludes that ether anesthesia is associated with hyperglycemia. The rise in the blood sugar is due to mobilization of hepatic glycogen. The various mechanisms possible are discussed and exclusion of sympathetic and vagal stimulation or hypersecretion of the suprarenals suggests that the action of the ether is directly on the liver cells.

Etiology of Endometrial Hyperplasia.—According to Burch and his associates, both the estrin hormone and the corpus luteum hormone produce a definite and characteristic reaction on the endometrium. It is possible in cases in which mixed effects are obtained to determine by means of histologic sections which is predominant. The microscopic appearance of the endometrium obtained from cases of Swiss cheese hyperplasia are similar to those found in animals which have been injected with extracts of placenta. Material obtained from the follicle cysts of human cases of hyperplasia, when injected into mice and rats, produced estrus. The changes in the uterus of each case were similar in many respects to those found in the uterus of the experimental animals receiving the fluid from that case.

Thyroidectomy for Thyrotoxicosis in the Young.—Greene and Mora give a report of twenty-six cases in which thyroidectomy was done for thyrotoxicosis, the patients being children between the ages of 8 and 16 years. These cases are a part of a series of 1,200 consecutive toxic goiter patients who were subjected to operation. There were twenty-two girls and four boys. The chief symptoms and signs were tachycardia, nervousness, goiter, exophthalmos, tremor, loss of weight, palpitation, enlargement of the left side of the heart, irritability, weakness and restlessness. The symptoms correspond closely with those manifested in adults. The average preoperative systolic and diastolic blood pressure readings were 132 and 65 mm., respectively. The postoperative readings were 108 and 72 mm. The average pulse pressure dropped from 67 to 36 mm. after operation. The average preoperative basal metabolic rate was plus 34.6. The average postoperative reading was minus 6.2. All of the glands examined microscopically showed varying degrees of hyperplasia and hypertrophy. One-stage thyroidectomy was done in every instance. There were no deaths in this series.

Virginia Medical Monthly, Richmond

58: 353-422 (Sept.) 1931

Question of Mortality in Acute Appendicitis. H. B. Stone, Baltimore.—p. 353.
Practicing Physician and Adult Education. G. Baughman, Richmond.—p. 356.
Visual Fields in Toxic Blindness, Due to Foci in Mouth and Nose. C. P. Jones, Newport News.—p. 361.
Obligations of Hospitals to Interns and, Reciprocally, Obligations of Interns to Hospitals. G. T. Baughan, Washington, D. C.—p. 363.
Diabetic Coma and General Practitioner. G. H. Wolfe, Abingdon—p. 365.
Prognosis in Eclampsia. M. P. Rucker, Richmond.—p. 369.
Management of Normal Labor in Home. J. L. Hamner, Mannboro.—p. 376.
Encephalography as Aid in Diagnosis of Brain Tumors: Case. H. R. Masters, Richmond.—p. 378.
Sprue in Southwest Virginia: Case. R. D. Campbell, Saltville.—p. 380.
Eugenic Sterilization. J. R. Gill, Petersburg.—p. 382.
Sporotrichosis: Case in Virginia. F. W. Shaw, Richmond, and R. Kinbrough, Norfolk.—p. 384.
Report of Eight Consecutive Cases of Ruptured Gastroduodenal Ulcers. G. W. Horsley, Richmond.—p. 386.
Agranulocytosis: Case with Three Relapses. C. Goldenberg, Washington, D. C.—p. 391.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

39: 649-728 (Sept.) 1931

Osteomyelitis of the Jaw. J. H. Woolsey, San Francisco.—p. 661.
Cinch Shortening Loop in Surgery of Exta-Ocular Muscles. R. O'Connor, Oakland, Calif.—p. 670.
Riedel's Struma in Contrast to Struma Lymphomatosa (Hashimoto). A. Graham, Cleveland.—p. 681.
Postoperative Hypothyroidism. R. D. McClure and A. B. McGraw, Detroit.—p. 690.
Clinical and Pathologic Study of Carcinomatous Gastric Ulcer with Particular Reference to Grading of Malignancy. W. H. Bueermann, Portland.—p. 698.

West Virginia Medical Journal, Charleston

27: 385-432 (Sept.) 1931

Medical Aspects of Jaundice. R. C. Blankinship, Madison, Wis.—p. 385.
Adenomatous Goiter. W. C. Kappes, Huntington.—p. 392.
Industrial Eye Injuries. A. J. White, Charleston.—p. 394.
Fungus Infection of Feet, Hands and Groins. H. T. Phillips and W. J. Morginson, Wheeling.—p. 401.
Low Mortality of Appendicitis. O. C. Cox, Washington, D. C.—p. 406.
Treatment of Diabetes Mellitus. H. G. Thompson, Charleston.—p. 407.
The Quest. May M. Malongy, Fairmont.—p. 410.

Wisconsin Medical Journal, Madison

30: 706-787 (Sept.) 1931

Immunization of Preschool Child Against Diphtheria by Use of Toxoid. A. B. Schwartz and F. R. Janney, Milwaukee.—p. 719.
Endocervicitis and Erosions: Their Treatment by Electrosurgical Methods. W. E. Ground, Superior.—p. 722.
Cancerous and Precancerous Lesions of Skin: Diagnosis and Management. C. J. White, Chicago.—p. 726.
The Traveling Venereal. S. J. Silbar, Milwaukee.—p. 729.
Medical Social Work for Sanatoriums. M. Bean, Milwaukee.—p. 731.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

4: 421-476 (Sept.) 1931

Radiology of Accessory Nasal Sinuses: New Standardized Technic for Exact Projection of All Accessory Nasal Sinuses, Together with Demonstration of Fluid Levels. H. G. Hodgson.—p. 421.
Simple and Accurate Method of Radiographic Pelvimetry. L. A. Rowden.—p. 432.
Hydatid Disease in England. J. F. Brailsford.—p. 440.
Uniformly Impressed Prints from Contrasty Negatives. A. Orley.—p. 451.
Secondary Radiation Therapy: Part II. Biologic Aspects. H. Burrows.—p. 454.

Glasgow Medical Journal

35: 137-200 (Sept.) 1931

What Surgery Offers in Cancer of Stomach. G. G. Turner.—p. 137.
Constancy of Cultural Reactions of Streptococci on Holman's Carbohydrate and Blood Agar Mediums: A Contribution to Classification of Streptococci. Margaret S. L. McCash.—p. 163.

Journal of Tropical Medicine & Hygiene, London

34: 301-372 (Sept. 15) 1931

Bearing of Tropical Experience on Views of Pathogenesis of Rheumatic Fever. J. T. Clark.—p. 301.
On Chemical Nature of "Pellagra Toxin" and Discovery of Thiosulphate Treatment of Pellagra. I. Sabry.—p. 303.
Some Aspects of Colon Group of Organisms, with Especial Reference to Water Supplies of Trinidad. J. L. Pawan.—p. 310.

Lancet, London

2: 513-564 (Sept. 5) 1931

*Mechanism of Inflation of Lungs: Influence of Deflation on Postoperation Complications. C. Briscoe.—p. 513.
Albuminuria Complicating Pregnancy. G. F. Gibberd.—p. 520.
Etiologic Importance of Elementary Bodies in Vaccinia and Fowl-Pox. J. C. G. Ledingham.—p. 525.
Infantile Hypertrophic Pyloric Stenosis: Symptomatology, Treatment and Prognosis. C. MacLeod.—p. 526.

Mechanism of Inflation of Lungs.—Briscoe strongly deprecates methods which aim at expanding the deflated lung in the early stages after operation. In the great majority of cases no effect of the deflation is perceptible, and the means suggested are unpleasant; when symptoms arise the procedure on theoretical grounds is inexpedient and practically it is detrimental. Points to be recommended are: 1. After operation the sitting-up posture assists respiration because gravity helps expiration by allowing the thorax to descend, counteracting the inspiratory elevation of the scalene and intercostal muscles and obviating the necessity for abdominal muscle action for this purpose. This is especially true of the type with thoracic breathing. The individual should be allowed to choose the position which is comfortable, and be encouraged to change frequently. 2. Bandages should not be too tight above the level of the umbilicus. It is here that abdominal protrusion in diaphragmatic inspiration is greatest in degree. On the other hand, a tight bandage supports the incised muscle. It is largely a question for the individual patient and the type of breathing he has developed. 3. Movements of the head and arm and of all sorts, as soon as these no longer cause pain, should be encouraged as inducing contraction in abdominal muscles and so relieving muscle monotony. The contraction of the diaphragm is increased, its level is lowered, and a step is taken toward expansion of the lower lobes. 4. When nonviscid sputum is present: (*a*) the mildest symptom is half-hearted coughing eighteen hours or more after operation, sometimes as much as every half minute, with no expectoration. Eventually some mucus is expectorated, usually after four or five days. This has accumulated in the "test-tube bronchi." There is not enough energy to get air behind it. As a rule, this does not require treatment. (*b*) If the condition is troublesome, the patient should be instructed to breathe in as slowly and deeply as possible and then to give a short, sharp expiration, which produces expectoration. During this effort he should support the lower thorax with a hand in each lower axilla, the nurse supporting the abdomen with her hand on the bandage over the area of incision. (*c*) After the third or fourth day, in addition, he may try gently turning into such a position that gravity helps the mucus to run out of the bronchus into the trachea.

where it can be brought up. (d) If pyrexia is present and the sputum is purulent instead of mucoid, a creosote inhaler should be employed, the inhaler to be worn as continuously as possible. The success of this is dependent on the manner in which it is introduced, on the instruction that deep breathing is contraindicated, and on seeing that the face is not burned by the *creosote. 5. Should the temperature rise after the lapse of* twenty-four to forty-eight hours with respiratory distress, the sputum will at first be scanty and viscid, and the cough irritating and nonproductive. Treatment should chiefly be directed to rendering the sputum liquid and easily expectorated. Most important is the rapid administration of alkalis well diluted, *every hour or two hours until the urine is alkaline, and of* medicated vapor inhalants and such anodynes as are safe. In the common type of condition, beginning on the second or third day the temperature will be down and expectoration easy, though the cough is still painful on the fourth or fifth day. 6. When more severe, the infection may be spread to deeper *parts. The cough and associated deeper respirations expand the* lung and fresh areas are infected. Hence arise bronchiolitis, bronchopneumonia, pneumonia, and late patchy pleurisy, with the usual sequelae. Treatment is such as is usually employed for these conditions. The author has not seen cases of such severity as to require that the bronchial contents should be *removed by mechanical means.* The upper lobes alone are quite capable of coping with the respiratory requirements when at rest. The distress of the collapse attack is readily relieved in a few minutes by controlling the movement of the side affected, as is the pain in pleurisy. A broad tape with a spring inserted is most efficient. The pain on coughing is not extin*guished in either of these conditions, and for the same reason.* A septic pleural effusion with its consequences may, of course, develop in pleurisy following operations, as in other forms of pleurisy, and requires similar treatment.

2: 565-616 (Sept. 12) 1931

Precancerous Lesions of Alimentary Tract. M. J. Stewart.—p. 565.
*The Poisoning Appendix. J. McDonnell.—p. 572.
*Albuminuria Complicating Pregnancy. G. F. Gibberd.—p. 576.
Antirachitic Value of Irradiated Yeast. S. K. Kon.—p. 579.
*Insulin and Preservative: Note on Effect of Insulin Solutions of Varying Reaction on Viability of Staphylococci. P. Hartley.—p. 582.
Observations on Production of Antipoliomyelitis Serum in Horses and Distribution of Antibody Among Serum Fractions. R. W. Fairbrother and W. T. J. Morgan.—p. 584.

The Poisoning Appendix.—McDonnell presents the results of investigations which suggest that the views on appendicitis should be recast, and that, instead of visualizing appendicitis as acute or subacute, to be followed by chronic disease, one should realize that the first evidence of trouble in the appendix is made manifest by nebulous symptoms which, in the aggregate, cannot be accounted for by any other than a toxemic origin. Hence one must view disease of the appendix as primarily a poisoning, with subacute, acute or chronic sequelae. This opinion is diametrically opposed to that of A. J. Walton, who doubts the existence of chronic appendicitis, apart from remainders left over from an acute attack, either as the cause of upper abdominal symptoms or as causing pain in the right iliac fossa. The "poisoning appendix" gives a physical sign which has hitherto not been described—viz., increased resistance of the upper segment only of the right rectus, in an otherwise normal abdomen. This increased resistance is easily appreciated but does not in any way simulate the form of resistance found in epigastric lesions. This sign tends to merge into that mentioned by W. Trotter, who pointed out that a definite difference in the tension of the two recti is probably the best physical sign of chronic appendicitis, but it differs in that the lower two segments of the rectus are generally unaffected. The roentgen evidence in these cases can be summed up in the expression "a nonfunctioning appendix"; i. e., an appendix which, on account of some pathologic changes, will not fill or, on the contrary, will not empty within the somewhat elastic time limit accepted as being the rate of filling or emptying of normal appendixes; or one of which the outline or limitation of movement is due to obstruction either from within or from without; e. g., concretions, constrictions, kinks or adhesions. This evidence conforms in detail with that already described *by Friedman in chronic appendicitis. In addition, however,* emphasis should be laid on the importance of finding calcareous *lymph nodes round the ileocecal region.* There has been much controversy as to the origin of calcareous lymph nodes in the neighborhood of the cecum. In this group of cases these appear to have no origin other than that due to inflammation from the area drained by these lymph nodes; out of eighteen cases with symptoms of poisoning and a nonfunctioning appendix, thirteen *presented this lymph node involvement.* Other causes having been eliminated, a poisoning appendix is a nonfunctioning appendix with a toxemic symptomatology for which the only treatment is appendectomy. Every care must be taken not to condemn a patient to an operation on the basis of a nonfunctioning appendix alone if maximum beneficial results cannot be *expected. It is particularly necessary to be on guard with* female patients, as they are subject to a complexity of symptoms, due to manifold forms of endocrine dysfunction, which closely simulate a picture of toxic origin. The clinical picture is one of symptoms arising from a condition of either slow general toxicity—e. g., lassitude, general malaise, loss of *energy—or one of a more advanced toxemic state showing* pyrexia, with the additional complication of vomiting, should a subacute local inflammation of the peritoneal tissues have occurred. None of the author's patients have ever exhibited pain, tenderness or discomfort in the right iliac fossa, except when pressure has been applied to a full cecum during roentgen *examination. The usual and various sources of toxins must* be eliminated. Having excluded dental and tonsillar sepsis, and any other form of toxin, one is justified in assuming that the toxin arises in the alimentary tract. Detailed investigation of the tract finally allocates the blame. A general toxemic state caused by a fault in the intestinal tract can be eradicated *by early detection and removal of the appendix. All surgeons* and physicians have seen many cases of apparently incomprehensible cure when symptoms have pointed to no definite pathologic lesion and when in desperation the appendix has been removed. Recognition of the poisoning appendix should considerably lower the surgical mortality in cases of appendectomy, *for a large percentage of patients would be operated on before* the predominance of peritoneal symptoms. It should also negative the disrespect with which physicians view operations for chronically diseased appendixes; a disrespect begotten of the indisputable fact that in a large percentage of cases the patients do not appear to have derived any benefit from the operations. *The probable explanation of this absence of beneficial results* is that the patients' systems have become so impregnated with the by-products of poisoning from the appendix as to render removal of the cause incapable of obliterating the effects. Investigations into the histories of patients with acute appendicitis have invariably shown that the patients complained of some phase of general malaise—which on close analysis would evidence toxemic origin—over a period, either long or short, before the onset of acute symptoms. Acute appendicitis must therefore be regarded as a preventable calamity.

Albuminuria Complicating Pregnancy.—In view of the unsatisfactory results that are liable to follow albuminuria complicating pregnancy, Gibberd emphasizes the necessity for more whole hearted treatment. The futility of basing a treatment on mere speculations as to the etiology of the disease is discussed, and a treatment the rationale of which depends on what is known of the late results is outlined. This treatment aims primarily at protecting the kidneys against the "toxemia," and it has as its basis, rest, protein-free diet, and early induction of labor. These three measures are discussed at length, and although each is a well recognized method of treatment, a plea is made for their more conscientious application, in an attempt to improve the late results, which are at present so unsatisfactory.

Insulin and Preservative.—According to Hartley, insulin solutions, with the acidity commonly given to them, have a germicidal action even when no added preservative is present. A slight change in the reaction toward the alkaline side not only destroys this germicidal action but converts the solution into a culture medium if no preservative is present. The usual proportion of phenolic preservative is still effectively germicidal under such conditions. Opalescence or turbidity of the solution is not an adequate indication of such change of reaction. Solutions can be made sufficiently alkaline as to remain clear and still support the growth of cocci.

Archives des Maladies du Cœur, etc., Paris

24: 401-464 (July) 1931

*Arrhythmia: Intravenous Quinidine Therapy. T. Padilla and P. Cossio. —p. 401.
Id.: Pulsus Alternans. N. Kisthinios and D. M. Gomez.—p. 410.
Pseudo-Aneurysm of Heart: Pericardiac Symphysis. S. Mentl.—p. 417.

Arrhythmia: Intravenous Quinidine Therapy.—Padilla and Cossio describe their experience in the treatment of two patients with supraventricular paroxysmal tachycardia and two patients with auricular flutter. They discuss the results and conclude that for the safe intravenous administration of quinidine the procedure should be as follows: For intravenous injection, 0.005 Gm. of quinidine sulphate is dissolved in 10 cc. of sterile physiologic solution of sodium chloride. The injection should be made slowly with the patient in a horizontal position. If the dose is not sufficient the injection may be repeated after a certain time, and the dose increased to 0.15 Gm. for every 10 Kg. of body weight. When the desired result is attained, the treatment may be continued orally. Because of its harmlessness and its effectiveness, intravenous quinidine therapy is indicated in all cases of prolonged paroxysmal tachycardia which do not yield to the usual therapeutic measures, in order to arrest the attacks suddenly and reestablish the normal rhythm. Intravenous quinidine therapy is also indicated in auricular flutter, particularly the paroxysmal form, to diminish the ventricular frequency due to an increase in the auriculoventricular conduction.

Gynecologie et Obstétrique, Paris

23: 481-578 (June) 1931

*Ectopic Pregnancy and Intraperitoneal Inundation of Genital Origin. G. Muller and C. Oberling.—p. 481.
Reaction of Deviation of Complement in Gonorrhea in Women. L. Izwojnicka and T. Zawodzinski.—p. 496.
Treatment of Puerperal Infection by Fixation Abscess. B. Sorrentino. —p. 511.
*New Method for Temporary Sterilization of Women. P. Morhardt.—p. 518.

Ectopic Pregnancy and Intraperitoneal Inundation of Genital Origin.—Muller and Oberling find an increase in the number of cases of ectopic pregnancy for the period from 1925 to 1930. They believe that this is parallel to the increase of gonorrhea. Genital inflammation as well as abnormal tubal peristalsis, as a result of irregularities in the sympathetic system and the ovarian hormone secretion, have been suggested as causes of ectopic pregnancy. Many clinical and histologic examinations convince the authors that salpingitis is not one of the inflammatory sequelae. Ectopic pregnancy is more common than is supposed. The authors discuss ten cases under the headings of tubal rupture, pelvic hemorrhage and tubal abortion, including examples of expulsion of decidua, hematocele formation, torsion of gravid uteri and bilateral tubal pregnancy. They summarize some of the recently recognized symptoms thus: (1) blue sign of Cullen, never observed except in the case of a transparent abdominal wall; (2) referred pains in the right hypochondrium or right shoulder caused by irritation, through extravasation, of the phrenic nerve in the diaphragm; (3) vesical symptom of Herzfeld-micturition at the moment of rupture, and (4) an important sign in locating a peritoneal inundation, namely, a piercing pain at the level of the culdesac on deep palpation (this is also observed in acute gonococcic pelvic peritonitis). When in doubt, one has recourse to the exploratory tapping of the Douglas culdesac. The authors believe that a detailed anamnesis should serve as a basis for clinical and especially laboratory research. They believe that surgical intervention is indicated even in cases in which the diagnosis is not absolutely certain.

New Method for Temporary Sterilization of Women.—Morhardt uses a method of sterilization which consists of crushing the fallopian tube at its extremity and applying two parallel sutures 10 mm. apart. The muscularis and the mucosa are destroyed and transformed into a fibrous cord. The physiologically essential part of the tube is not touched. However, difficulties have been encountered in making the tube permeable again. The author recommends the following method. He uses an electrical bistoury to resect the abdominal extremity of the fallopian tube. The edges are then sutured end to end or implanted into the uterus. The second intervention is both simple and brief. Sterilization performed in this manner does not prolong appreciably the small cesarean operation (after the third month) and there is no loss of blood. It could be done at the same time as a major operation whereas the other procedures necessitate a second intervention which keeps many fearful or negligent patients from taking advantage of them.

Presse Médicale, Paris

39: 1213-1228 (Aug. 15) 1931

Kala-Azar in France. P. Giraud.—p. 1213.
*Diathermy in Inflammation of Pelvic Region and Mammary Glands. D. Fainsilber and M. Portret.—p. 1214.

Diathermy in Inflammation of Pelvic Region and Mammary Glands.—Fainsilber and Portret report the results they obtained with diathermy in fifty-six cases of vaginismus, cervicitis, endocervicitis, metritis, perimetritis and adnexitis. They conclude that their observations make evident the efficiency of diathermy not only in gynecology but also in inflammatory infections of the mammary glands. In the latter, diathermy not only avoids compression of the breast and interruption of nursing but stops pain, congestion and suppuration. Moreover, the effect of diathermy treatment is manifested without delay in inflammatory mammary infections, yet it is without influence on the growth of malignant tumors. The treatment may be utilized in the differential diagnosis between mastitis and neoplasms. In genital infection in which the acuteness does not necessitate urgent intervention or in a slowly developing mammary lesion of questionable prognosis, one may use diathermy before running the risk of operation.

Schweizer Archiv. f. Neurologie u. Psychiatrie, Zurich

27: 193-429 (No. 2) 1931

Traumatic Injury of Extrapyramidal Apparatus. R. Bing.—p. 193.
Flight of Ideas. L. Binswanger.—p. 203.
Regression Phenomena of Fibrous Glia and Its Relation to Pseudocalcified Concrements. G. Biondi.—p. 218.
*Efficacy of Insulin in Combat of Abstinence Symptoms Following Sudden Withdrawal of Morphine. F. Braun.—p. 226.
History of International Neurologic Convention in Berne. C. Dubois. —p. 234.
Scientific Character of Psychoanalysis. H. Flournoy.—p. 241.
Prognosis in Psychiatric Practice: Its Application in Schizophrenia. O. L. Forel.—p. 250.
Pathologic Anatomy of Epidemic Encephalitis. E. Frey.—p. 259.
Case of Institutional or "Defiance" Psychosis. O. Hinrichsen.—p. 278.
Changes in Form of Pupils in Commotio et Contusio Cerebri. E. Katzenstein.—p. 286.
Topography of Histologic Lesions of Senile Brain. C. Ladame and F. Morel.—p. 301.
Results of International Inquiry on Position of Neurology in Medical Instruction. M. Minkowski.—p. 311.
*Anterior Lobe of Hypophysis and Growth. P. von Monakow.—p. 321.
Psychiatric Indications for Interruption of Pregnancy. W. Morgenthaler. —p. 328.
Acute Benign Lymphocytic Meningitis. F. Naville.—p. 340.
Psychogenic Origin of Physical Troubles in Neurasthenia. R. de Saussure.—p. 348.
Pathogenesis of Periodic Mental Disturbances. J. E. Staehelin.—p. 354.
Pathophysiologic Problems of Schizophrenia. H. Steck.—p. 361.
Regularity in Psychic Processes. Charlot Strasser.—p. 373.
Development of a Psychotic Child. M. Tramer.—p. 383.
Evaluation of Time Factor in Neuropathology. O. Veraguth.—p. 393.
Peculiar Cerebral Disturbances During Childhood. K. M. Walthard.—p. 402.
*Neurotropism of Large Groups of Substances Used in Modern Industry. H. Zangger.—p. 413.
Probable Relation of Certain Dyskinesias, Especially of Dystonic Dysbasias and of Bradykinesia to Nervous Conduction and Time Factor. H. Brunschweiler.—p. 417.

Insulin for Combating Symptoms Following Sudden Withdrawal of Morphine.—Braun directs attention to a new method for treatment of morphinism, which was first recommended by Sakel in the *Deutsche medizinische Wochenschrift* (**56:**1777 [Oct. 17] 1930; abstr. The Journal, Jan. 3, 1931, p. 78). He modified the method somewhat in that he administered smaller doses of insulin than Sakel, who gave daily doses up to 80 units for six or eight days. The author gives six case histories of persons who had been addicts for several years. On the basis of the favorable results which he obtained in these cases he recommends the treatment. He stresses that the insulin cure must of course be followed by psychotherapy but that the latter is less difficult because the insulin treatment effects a complete change in the patient.

Anterior Lobe of Hypophysis and Growth.—Von Monakow points out that the concurrence of acromegaly and of adenoma of the hypophysis, observations in some cases of gigantism and of dwarfishness, and animal experiments with extirpation and implantation of hypophyseal tissues indicate a relationship between the anterior lobe of the hypophysis and the process of growth. However, in human beings there is rarely an opportunity to observe the influence of hypophyseal preparations on the growth process. Consequently the author feels justified in reporting the clinical history of a boy with infantilism and mongolism. At the age of 6 the boy showed the development of a child aged 3. Under the influence of thyroid preparations the development improved somewhat, but later the preparations became less effective, and at the age of 14, when the boy showed a development comparable to that of a child aged 9, administration of preparations of the anterior lobe of the hypophysis was begun. The extract had been prepared from the hypophysis of growing animals. Medication with this preparation had the effect that a rapid growth set in. Roentgenoscopy of the bones of the hand proved not only that the boy grew in height but that the skeleton also matured. That the hypophyseal preparation was the actual cause of the more rapid growth was proved by the observation that when medication with it was discontinued for several months the growth stopped and did not set in again until the hypophyseal preparation was again administered. The sexual characteristics developed more rapidly under the influence of the hypophyseal preparation. They were somewhat in advance of the general development; however, the mental development did not advance satisfactorily. At the age of 17 the boy was barely able to make the grade of boys aged 10 or 11 years. In the conclusion the author points out that in spite of the good results obtained with the preparation of the anterior lobe of the hypophysis, this case report does not permit the conclusion that the infantilism was of hypophyseal origin, for the normal appearance of the sella did not indicate a hypophyseal disturbance. Moreover, the fact that normal rats show gigantism following implantation of hypophyseal tissues indicates that even the normal growth process can be abnormally increased by the hypophysis, and this also proves that it is advisable to be cautious with conclusions ex juvantibus.

Neutropism of Substances Used in Modern Industry.—Zangger points out that it is necessary to investigate the toxicologic properties of many chemical substances that are employed in modern industry as solvents, for diluting purposes, for cleaning; as additions to paints, to lacquers, to glues and to putties; for protection against rust; also in toilet articles, in vermicides, in fire extinguishers and in refrigerators. The chemical character of many of them is such that they have an affinity to lipoids and to other fatlike substances, and consequently their chronic influence may have an injurious effect on the nervous system and on protoplasmic organs such as the kidneys, suprarenals, liver, ovaries and testes. Some of the substances are absorbable by the skin as well as by the respiratory apparatus. The author points out that there are still great gaps in toxicologic knowledge. It is as yet not definitely known how much of the chronically absorbed substances is retained by the organism and how the toxic effects differ in various persons.

Annali Italiani di Chirurgia, Naples

10: 845-1006 (Aug. 31) 1931

Primary Carcinoma of Duodenum. G. Pacetto.—p. 845.
Aseptic Operative Method: Possibility of Contamination from Drainage Established for Prophylactic Purposes in Surgical Interventions. M. Romeo.—p. 881.
Morphology of Transplanted Placental Elements. G. Perrotti.—p. 887.
*Injections of Calcium Salts into Tissues Adjacent to Fractures. S. Rollo.—p. 901.
*Hepatic Hemostasis. P. Barco.—p. 913.
*Morphologic Modifications of the Blood, and Behavior of Immunizing Processes with Relation to Periarterial Sympathectomy. F. Benso.—p. 951.
Colibacillary Epididymitis. G. Calissano.—p. 962.
Supernumerary Pancreas. I. Barcaroli.—p. 969.
Surgical Edemas. O. Amorosi.—p. 979.

Injections of Calcium Salts into Tissues Adjacent to Fractures.—Rollo injected aqueous suspensions of calcium glycerophosphate into the tissues immediately adjacent to fractures, in dogs and in rabbits, and then studied roentgenologically and histologically the behavior of the callus about the fragments of bone, from the fifteenth to the thirtieth day. He found always early ossification of the callus and the appearance of calcifications in the regions adjacent to the bones. These results have to do with applications under physiologic conditions. Further experiments will show whether in pathologic conditions worth-while benefits can be realized.

Hepatic Hemostasis.—Barco established experimentally that, at the present time, hepatic hemostasis is best attained by the following methods: autoplastic muscle graft, heteroplastic muscle graft and coagulation by means of the electrical knife. Each of the three methods compared with the other two has its advantages and its disadvantages. The autoplastic muscle graft does not always have a prompt and sure hemostatic action, although, on the other hand, the fibers gradually degenerate and the resulting reaction in the connective tissue is not intense; hence a linear scar of less extent is formed. The heteroplastic muscle graft, however, effects a prompt and enduring hemostasis, but the graft degenerates soon and the reaction in the connective tissue is intense, so that a cicatricial tissue results which is at least four times as large as that resulting from the use of the autoplastic graft. Such grafts must, of course, be used in perfectly aseptic fields. By the use of the electrical knife, followed by suturing of the cauterized surfaces to eliminate possible secondary hemorrhages, immediate hemostasis is effected, though the necrosis of the tissues is intense and is also remotely in evidence. The intense reaction on the connective tissue that results is the cause of an extensive cicatrix.

Morphologic Modifications of the Blood with Relation to Periarterial Sympathectomy.—Benso concludes from his experiments on persons sympathectomized that the increase of erythrocytes is not always present and when found is always slight. The quantitative changes in the erythrocytes do not run *pari passu* in the sound limb and in the diseased limb. The increase of leukocytes is not a constant factor, and when it occurs it is slight. It is more frequent in the diseased limb than in the sound limb. More frequent than the increase of leukocytes is the increase of neutrophils, although that too is within modest limits. The increase of neutrophils is more frequent in the diseased limb than in the sound limb. Bactericidal potency was always absent in the author's experiments except in one case, in which it was slight. Finally, the phagocytic potency of the blood was sometimes slightly increased after sympathectomy, there being a correspondence between the sound limb and the diseased limb.

Clinica Chirurgica, Milan

34: 585-692 (June) 1931

Mechanical Occlusions of Intestine in Appendicitis. G. Nogara.—p. 585.
Pathogenic Action of Certain Abnormal Ligaments Between the Gallbladder and the Colon. C. Chianello.—p. 616.
Primary Tuberculosis of Mammary Gland in Women. C. Cavina.—p. 626.
Researches on Variations of Azotemia, Alkali Reserve and Sodium Chloride in Experimental Intestinal Occlusion. F. Pagliani.—p. 645.

Giornale di Clinica Medica, Parma

12: 785-866 (Aug. 10) 1931

*Prognosis of Serous Pleuritis in Child. M. Cotellessa.—p. 785.
Peritoneal Carcinosis Due to Primary Gelatinous Cancer of Vermiform Appendix. A. Fontana.—p. 809.
Action of Ultraviolet Rays on Glutathione Content of Blood of Organs and of Skin. F. Vannucci and C. Negri.—p. 830.
Attacks of Convulsions in Relation to Intestinal Helminthiasis. A. Chierici.—p. 851.

Prognosis of Serous Pleuritis in Child.—Cotellessa concludes from his researches that serous pleuritis in the child is quite often, as is admitted by most authors, of a tuberculous nature and may lead later to a diffuse tuberculous process, the pleuritis being the first stage of diffusion of that process. The eventual evolution of the tuberculous process is associated with constitutional peculiarities, with heredity, with the opportunities for later contagion, or with other causal factors that have appeared independent of the treatment used. The treatment of types of serous pleuritis in the child, although it is firmly established that it is superfluous and possibly harmful to employ evacuation in forms with a slight exudate, does not exclude evacuation treatment in cases with an adequate fluid effusion, with respiratory decompensation, and with pressure of the adjacent organs. Evacuation treatment has not resulted in the author's experience in harmful effects on the later course of the disease.

Policlinico, Rome

38: 325-396 (July 15) 1931. Surgical Section

Pancreatic Cysts: Case. F. Benso.—p. 325.
*Strawberry Gallbladder: Case. R. Grasso.—p. 335.
Microscopic Changes Produced by Electric Knife. G. Gucci.—p. 350.
One Hundred and Seventy Cases of Echinococcus Cyst. G. Petta.—p. 360.
Renal Functioning Studied with Indigo Carmine. A. Vitale.—p. 371.
Electrical Incision by Means of Diathermic Loop in Minor Surgical Interventions. V. Wucherpfennig.—p. 379.

Strawberry Gallbladder.—Grasso concludes from his clinical and anatomopathologic researches in a case of strawberry gallbladder, with simultaneous interstitial calculosis, that, in the pathogenesis of biliary lithiasis, importance must be attached to intramural calculosis, not only in the interstitial but also in the subendothelial form (strawberry gallbladder). The clinical syndrome is similar to that of calculosis of the gallbladder. Strawberry gallbladder is an anatomopathologic entity that is not of inflammatory origin but is a simple lipoidosis of that organ and is of a reversible nature.

Archiv für Gynäkologie, Berlin

146: 155-366 (Aug. 10) 1931

*Changes in Liver Following Castration. O. Bokelmann, H. Dieckmann, C. Kaufmann and W. Scheringer.—p. 167.
Anatomicoclinical Studies on Ovarian Tumor Material of the Women's Clinic in Kiel. K. Tietze.—p. 197.
Phosphorus Content of Serum of Pregnant Women and of the New-Born. O. Timpe.—p. 232.
*Influence of Viosterol on Behavior of Calcium and Phosphorus Contents of Serum During Pregnancy and During Osteomalacia. O. Timpe.—p. 240.
*Experimental Modification of Iodine Metabolism by Corpus Luteum Hormone. W. Scheringer.—p. 248.
Significance of Six Phasic Microsedimentation Test for Gynecologic Problems. H. Eufinger.—p. 261.
*Autohemotherapy in Puerperal Fever. M. J. Litwak.—p. 273.
Tuberculosis and Pregnancy. A. Blisnjanskaja.—p. 302.
Time of Conception Capacity of Women. H. Knaus.—p. 343.
Blood Vessels on Surface of Myomas. W. Mestitz.—p. 358.

Changes in Liver Following Castration.—Bokelmann and his associates point out that obesity, no matter which form, is always due to a disproportion between the ingestion of food and the food requirements of the organism. Considered from this point of view, obesity is a metabolic disturbance and the condition of the liver, as the central organ of metabolism, deserves especial consideration. The authors investigated two problems: (1) the total glycogen and fat contents of the liver in genital obesity; (2) whether this form of obesity can be influenced by the administration of ovarian hormones. The tests were made on albino rats. The livers of the castrated female rats showed considerable changes in the chemical composition, in that the absolute and the relative glycogen contents were increased, while the relative content in fat was decreased. The postcastration increase in weight and the glycogen concentration in the liver showed a certain parallelism. The weight of castrated albino rats that were treated with the follicle hormone inducing estrus increased likewise. Accordingly it cannot be decided whether the removal of the ovaries has a specific influence on the carbohydrate-fat metabolism or whether the castration checks the combustion processes in general; at any rate the liver in genital obesity is characterized by a high glycogen content and by deficiency in fat. This condition is the exact opposite of the fatty liver that develops in the artificially overnourished organisms of fattened animals. Investigations on the glycogen and fat contents of the liver during the various phases of the sexual cycle were made on seventy albino rats. The quantitative differences were negligible, but the number of tests is still too small to permit a final statement. Histochemical estimation indicates a relatively low glycogen concentration of the liver during the proestrum and estrum, whereas during the metestrum and diestrum the opposite is observed.

Influence of Viosterol on Calcium and Phosphorus Contents of Serum During Pregnancy and Osteomalacia.—Timpe found that not in all but in a considerable number of the examined cases viosterol exerted an influence on th calcium and phosphorus contents of the serum of pregnan women. This influence became manifest in an increase of th total calcium content and of its dialyzable portion and in reduction of that portion of phosphorus that is insoluble i acid. In nonpregnant women with osteomalacia the administration of viosterol effected cure. The organic phosphoru content of these patients was influenced in the same manne as that of the healthy pregnant women.

Experimental Modification of Iodine Metabolism b Corpus Luteum Hormone.—Scheringer studied the action o the ovarian hormones, especially of corpus luteum hormones on the thyroid in women with normal menstruation. In eig of the women the corpus luteum hormone was administere during the intermenstrual period and in five during the premenstrual period. The reactions were about the same in th two groups in that parenteral administration of one ampule o corpus luteum hormone effected a marked increase in the iodin concentration of the blood, and an increase, although somewhat less regular in the elimination of iodine in the urin These changes were especially noticeable when the hormon had been given on two successive days. Tests with the follicle hormone revealed that small doses of this hormone di not have the same influence on the iodine concentration o the blood and urine as the corpus luteum hormone did, bu larger doses of the follicle hormone had an effect like tha of the corpus luteum hormone. However, the tests with th follicle hormone were made on a small number of women an consequently the author does not feel justified in drawing fin conclusions. The preparations that were employed for th experiments were found practically free from iodine, and control solutions were found to have no influence on the iodin content. On the basis of his observations the author concludes that administration of "ovarian" hormone increased th functioning of the thyroid.

Autohemotherapy in Puerperal Fever.—Litwak review the literature and reports his own experiences on the efficac of autohemotherapy in puerperal fever. In discussing the tec nic of the treatment he states that from 5 to 10 cc. of bloo was withdrawn from the cubital vein and was injected int the gluteal muscle. In cases in which it was possible to begi the autohemotherapy early, 10 cc. was administered in the firs injection, and in the subsequent treatments the quantity wa gradually reduced; however, in a patient in whom the diseas was at a more advanced stage, not more than 5 cc. was give at the first injection and after that the amount was increase by 1 cc. at each subsequent treatment. In regard to the intervals between the treatments the author states that he has foun the one day interval to be the most advantageous. Furthe the mechanism of autohemotherapy is discussed and case histories are given. A tabular report indicates the various puerperal septic diseases in which autohemotherapy was employe It was found that autohemotherapy had not the same efficac in the different puerperal disorders. The milder forms o endometritis and lochiometra usually did not require treatment the more severe cases improved under the influence of autohemotherapy. In puerperal ulcers and in mastitis autohemotherapy proved likewise of great value, only ten out of thirty three patients with mastitis required surgical treatment. I spite of the fact that many authorities consider autohemotherapy as contraindicated in pyelitis, the author obtaine favorable results with it. Pelviperitonitis and parametriti likewise yielded to autohemotherapy. In cases of thrombophlebitis of the pelvis and of the lower extremities, autohemotherapy was employed; however, the author thinks that in th majority of these cases it is not necessary, and that immobilization of the extremities and good care are sufficient. Pyosalpinx proved least influenceable in that most of the patient *had to remain in bed for several months; however, there wa* no fatality from pyosalpinx. In peritonitis and in generalize infection with metastases, autohemotherapy proved to be o great value. It counteracted the pain, and that it stimulate the myeloid and the reticulo-endothelial system could be observed on the hemograms. However, the author does no wish to give the impression that autohemotherapy is a specific remedy in such cases. He deplores that in cases of peritonitis and of generalized infection the patients are often brought for treatment when it is already too late. However, in the beginning stage of puerperal septic disturbances autohemotherapy is of great therapeutic value.

Beiträge zur Klinik der Tuberkulose, Berlin

77: 641-804 (July 6) 1931

*Possibilities and Limitations of Thoracocauterization According to Jakobaeus' Method with Remarks on Maurer's Enucleation Operation. F. Pomplun.—p. 641.
*Value of Roentgenology and Thoracoscopy for Indications for Thoracocauterization. F. Pomplun.—p. 656.
Treatment of Pneumothorax Empyemas in Patients with Tuberculosis. Geismeyer.—p. 682.
Congenital Bronchiectasis and Cystic Lung. J. Herms and C. Mumme.—p. 701.
Influence of Nonspecific Factors in Tuberculin Reaction. H. Reichel and W. Milbradt.—p. 717.
Lipase Titer of Serum of Children with Tuberculosis. A. Gradnauer.—p. 725.
Pregnancy and Pulmonary Tuberculosis. A. Divoux.—p. 742.
*Roentgen Diagnosis of Tuberculosis of Larynx. A. M. Gelfon and N. A. Panow.—p. 795.

Possibilities and Limitations of Thoracocauterization.—In the first part of the article, Pomplun relates his experiences with the method of Jakobaeus. In 92 out of 465 artificial pneumothoraces it was considered necessary to resort to thoracocauterization in order to remove adhesions that prevented the complete collapse. Roentgenoscopy and thoracoscopy of these 92 patients revealed, however, that thoracocauterization was feasible in only 65 of them. In 49 of these, that is, in more than 75 per cent, the operation was a complete success, in 12 patients it was partially successful, in 3 patients the course of the disease was not influenced, in spite of the fact that the collapse had become more complete, and in 1 patient there was an exacerbation of the tuberculous process. Of the 65 patients who had undergone thoracocauterization, 55 were able to work again. The fact that from 70 to 80 per cent of the thoracocauterizations that are done according to the Jakobaeus method are completely successful shows that this procedure represents a considerable improvement in the induction of artificial pneumothorax. However, the method of Jakobaeus also has its limitations. Short adhesions, in which there is only a minimal distance between the lung and the wall of the thorax, also unusually thick adhesions, lung pedicles, and strands containing much blood cannot be removed with the aid of the cautery only and in cases of this nature Maurer's modification of the Jakobaeus method brings better results. Maurer's method is not a mere division of the strands but rather an "enucleation" of the thoracic adhesions by means of a combination of diathermy and the cautery. Maurer works, if possible, in the sterile layer of the endothoracic fascia, and serious complications such as hemorrhages and empyemas can thus be avoided. The author employed Maurer's procedure in 14 cases, and he thinks that this method has greatly enlarged the sphere of thoracocauterization, in that patients who formerly required thoracoplasty, or in whom pneumothorax treatment had to be discontinued, can now be treated by thoracocauterization and artificial pneumothorax. The technic of Maurer's combination method is comparatively difficult and requires long practice.

Value of Roentgenology and Thoracoscopy for Indications for Thoracocauterization.—Pomplun aims to show that in cases of partial pneumothorax the roentgenogram frequently does not give a clear picture of the number and size of adhesions. The surgeon is often surprised at the great differences between roentgenograms and the results of thoracoscopy. A comparison of the two shows that one has to be on guard against erroneous interpretation of the roentgenogram. The necessity for precaution becomes the more apparent if one considers that even the endoscopic examination shows the adhesions only from one side; namely, by way of direct optics. The thoracoscopic picture appears entirely different, however, when indirect optics is employed, when the adhesions are observed from the side and, as far as possible, also from the back. An apparently thin strand may suddenly be recognized as a thick adhesion and other difficulties may be encountered. In deciding on the advisability of thoracocauterization one should therefore never rely on the roentgenogram alone but should also resort to thoracoscopy by direct and indirect optics.

Roentgen Diagnosis of Tuberculosis of Larynx.—Gelfon and Panow show that roentgenoscopy represents a valuable diagnostic method in tuberculosis of the larynx. It shows the localization, the extent and the depth of the process. In connection with the clinical and laryngoscopic observations, the roentgenogram permits a differentiation of the various forms of the tuberculous processes; namely, the productive and the exudative forms. Laryngoscopy and roentgenoscopy complement and control each other, and together they give a clear picture of the laryngologic disease.

Klinische Wochenschrift, Berlin

10: 1521-1560 (Aug. 15) 1931

Physiologic and Pharmacologic Significance of Circulatory Active Products of Intermediate Metabolism. K. Zipf.—p. 1521.
Hydrogen Ion Concentration of Feces and Its Significance for Acid-Base Equilibrium. W. Löffler and M. Kartagener.—p. 1524.
Modification of Chronic Nephropathies by Intercurrent Infectious Diseases. Berta Aschner.—p. 1525.
*Copper Content of Human Milk and of Cow's Milk. S. G. Zondek and M. Bandmann.—p. 1528.
Clinical Investigations on Action of Extracts from Heart and from Skeletal Muscles in Circulatory Disorders. W. Ludwig.—p. 1531.
Significance of Deciduous Teeth for Child's Organism. K. F. Hoffmann.—p. 1534.
Body Weight During and After Fresh Air Treatment of Undernourished Children with Inactive Tuberculosis. W. Kornfeld.—p. 1535.
Simply Prepared and Reliable Gold-Sol: Useful Dry Complement. H. Hoess.—p. 1538.
Value of Kahn's Flocculation Reaction in Comparison with Reactions of Wassermann and Meinicke, Especially in Pregnant and Puerperal Women. Maria Rittau.—p. 1539.
Simplified and Improved Technic of Staining of Vital Granulated Erythrocytes with Remarks on Counting Method. R. Wolfer.—p. 1541.
Alleged Nonpoisonousness of Ergosterol Preparations Irradiated with Filtered Rays. T. Reiter.—p. 1542.
Idem. F. Laquer.—p. 1542.
Hormones of Generative Gland and Growth of Blastoma. B. E. Brüda.—p. 1543.
Prevention of Photodynamic Manifestations by Neoarsphenamine. S. Rothman.—p. 1544.
Arsenic Exanthems in Acute and Chronic Arsenic Poisoning. K. Ullmann.—p. 1544.

Copper Content of Human Milk and of Cow's Milk.—In their introduction, Zondek and Bandmann point out that researches in recent years have proved the biologic significance of certain metals, including copper. Steenbock and his associates observed that when young rats were fed for a long period with only cow's milk they developed deficiency symptoms that could be counteracted only by administration of copper salts. In order to determine whether the copper deficiency of cow's milk may have an injurious influence on the human infant, Zondek and Bandmann compared the copper content of human milk and of cow's milk. The results of their investigations are summed up as follows: 1. The copper content of human milk is about three times as great as that of cow's milk. 2. The mixtures of cow's milk (diluted cow's milk with addition of certain substances) likewise have a deficient copper content, differing only slightly from that of pure cow's milk. 3. The difference in the copper content of cow's milk and of human milk is about 0.4 mg. per liter. 4. Because of the great biologic significance of copper, especially for the growing organism, prophylactic administration of copper seems advisable for artificially fed infants.

Kazansky Meditsinsky Jurnal, Kazan

27: 555-704 (June) 1931

*Diagnostic Value of Skin Reaction to Foreign Serum. A. F. Agafonova.—p. 574.
Syphilitic Aortitis. L. I. Vilenskiy and L. M. Rachlin.—p. 579.
Pulmonary Hyperemia. M. Mastbaum and M. Vinnikov.—p. 584.
Surgery in Chronic Pleural Empyema. Y. A. Ratner.—p. 605.
Electrotherapy in Gynecology. L. G. Sobolev.—p. 613.
*Metrosalpingography. D. Goldstein and S. Leybov.—p. 616.
Roentgenologic Methods in the Intestine. R. Y. Gasul and M. J. Goldstein.—p. 630.
Malarial Dermatitis. Y. D. Pechnikov.—p. 635.
Sodium Thiosulphate in Dermatology. A. M. Leyzerovsky.—p. 638.
Brilliant Green in Treatment of Blepharitis. I. I. Ratner.—p. 642.

Diagnostic Value of Skin Reaction to Foreign Serum.—Agafonova, using the Prausnitz-Küstner method in many animal and human experiments, concludes that skin tests with foreign serum are valuable as a diagnostic aid in serum sickness. A strongly positive skin reaction to serum indicates hypersensitiveness of the patient. Therapeutic serum in positive cases should be used carefully and then in fractional doses. Sensitization to foreign serum is more often brought about through the intracutaneous route than through any other (intramuscular) route.

Metrosalpingography.—Since 1928, Goldstein and Leybov have included in their study sixty-one patients and have taken 142 roentgenograms. In the majority of cases 20 cent iodized sesame oil was the opaque medium; however, when the results were not clear, the test was repeated with iodized poppy-seed oil. Their observations lead them to conclude that: Metrosalpingography has proved to be a valuable method for anatomic and physiologic study in the diagnosis of female diseases of the uterus and the oviducts, demonstration of details in rare anomalies of the uterus, peristalsis of the fallopian tubes, and early pregnancy. To localize spasm of the oviducts, the dosage of opaque medium should at first be small; namely, 2 or 2.5 cc. Roentgenography is without equal in determining the indications for surgical intervention. Surgical intervention is recommended when the obstruction is in the abdominal extremity of the oviduct but is not advised when the obstruction is in the pars isthmica or pars interstitialis. Roengenography may supplement the Bordet-Gengou complement fixation test for gonorrhea and may aid therapeutic prognosis and control. Hospitalization of the patient is unnecessary; she may continue to perform the daily routine of duties. Metrosalpingography may in time prove a means of increasing the knowledge of the anatomy and physiology of the female genital system.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: *4401-4508 (Aug. 29) 1931*

Beriberi as Complication in Pregnancy and Childbirth. N. J. A. F. Boerma.—p. 4402.
Chloro-Anemia with Achylia Gastrica. F. S. P. van Buchem.—p. 4408.
Basal Metabolism in Fat Children. M. de Bruin.—p. 4418.
*Treatment of Pernicious Anemia by the Intravenous Administration of Liver Extract. H. C. van Leeuwen.—p. 4425.
Torsion of Spermatic Cord. H. L. Coopman.—p. 4433.

Treatment of Pernicious Anemia.—Van Leeuwen reports the results secured from the intravenous administration of a special type of liver extract in five cases of pernicious anemia—some of them grave. In every case, in from two to four days after the first injection an increase in the number of reticulocytes was observed. After the injection of 30 cc. of the extract the author noted a considerable increase of the hemoglobin content and in the number of erythrocytes. No dangerous or even unpleasant by-effects are observed if the intravenous injections are given slowly—in some cases a total of nineteen injections. The influence on the general condition of the patients was very good. The author regards, therefore, this type of liver extract as a harmless remedy with a rapid action. Trials of intramuscular administration are being made. Thus far, a prompt reaction on the reticulocytes has been observed. In contrast with the intravenous administration, unpleasant by-effects were not noted, and the injections were painless.

Bibliotek for Læger, Copenhagen

123: 203-248 (May) 1931

*Kidney Functioning in Acute Nephritis. C. Holten.—p. 203.
Psychopathogenesis of Schizophrenia. O. Brüel.—p. 243.

Investigation of Kidney Functioning in Acute Nephritis.—Holten states that combination of the concentration test with a creatinine test gives the best information on the renal functioning. In the case of acute nephritis the function tests, particularly the creatinine tests, are of value in determining the completeness of the patient's recovery. In acute nephritis the combination of the creatinine test and the concentration test makes topical diagnosis possible to a certain degree.

123: *297-359 (July) 1931*

*Treatment of Femoral Hernia. E. Husted.—p. 297.

Treatment of Femoral Hernia.—In Husted's 1,688 cases of femoral hernia treated surgically, the postoperative mortality was between 1.5 and 2 per cent, mainly from pulmonary complications and emboli in the pulmonary artery. The procedures employed were simple herniotomy with and without suture of the hernial ring, suture of Poupart's ligament to fascia, muscle or periosteum, inguinal methods, and plastic methods with the use of fascia or muscle. The immediate results, with one exception, were good in all cases. After-examination more than one year after treatment in 667 cases showed recurrence in 20 per cent, the permanent results being affected particularly by suppuration and the use of débridement. There was recurrence in only 6.5 per cent after the inguinal methods and in only 15 per cent after suture of the ligament to the exposed pectineus muscle. In the treatment of the hernial sac, high extirpation seemed to be important. In about 4 per cent of the cases inguinal hernia appeared later, without marked difference between the various operative methods used.

Hospitalstidende, Copenhagen

74: *685-712 (June 18) 1931*

*"Malacia" of Semilunar Bone: Forty Cases. Conc'n. L. Ø. Christensen—p. 685.
*Osteochondritis Dissecans of Head of Radius. A. Nielsen.—p. 701.
Glyoxylase: Coenzyme Concentration in Live Tissue in Inanition. P. Vogt-Møller.—p. 706.
Nystagmus with Myoclonia in Twins. P. Levinson.—p. 708.

"Malacia" of Semilunar Bone.—Christensen does not find decisive evidence against the conception of malacia of the semilunar bone as the result of fracture. He states that the disorder is incurable and the changes which have once occurred are likely to increase, particularly with development of arthritis deformans. Complete functional restitution is practically unknown but there is a marked tendency to spontaneous improvement after the first acute stage. Treatment should be conservative, at all events the first year or two. The author questions whether operative treatment is ever indicated.

Osteochondritis Dissecans of Head of Radius.—Nielsen describes three typical cases in the right elbow in young men in whom the condition originated without actual trauma and ran a chronic course. Roentgenologically and on operation it was found that with the forearm supinated the osteochondritis in all cases was in that part of the margin of the head which turned toward the ulna. The loosened piece of bone and cartilage and its surroundings had the same appearance as a recent osteochondritis deformans in the head of the humerus or condyle of the femur.

74: *713-724 (June 25) 1931*

*Chronic Ileocolic Invagination. P. Freudenthal.—p. 715.

Chronic Ileocolic Invagination.—In Freudenthal's first case in a girl, aged 16, with pain in the right side of the abdomen for several weeks, operation revealed an ileocecocolic invagination with changes in the cecum and ascending colon indicating that the invagination had existed for a long time. In the second case, in a girl aged 4, with onset of symptoms of a week before operation, he found an ileocecocolic intussusception probably of several days' duration, together with considerable hypertrophy of the anterior taenia of the cecum and ascending colon. In both cases there was a cecum mobile and a common mesentery.

Hygiea, Stockholm

93: 481-528 (July 15) 1931

*Development of Syphilis in Light of Histology. J. Almquist.—p. 481.
Operative Treatment of Exophthalmic Goiter. G. Petrén.—p. 490.
Liver Rhythm and Daily Variations of Blood Sugar. E. Forsgren.—p. 501.
Daily Variations of Blood Sugar. J. Möllerström.—p. 504.

Development of Syphilis in Light of Histology.—From his histologic examinations of various syphilitic changes, Almquist concludes that there are unlike characteristic changes in each of the different tissues, that these changes are in the main the same both in older and more recent stages of syphilis and allow no division into three periods, and that the different appearance of the various clinical syphilitic changes depends on the localization of Spirochaeta pallida in the tissues, also on variations in immunity, action of toxins and antitoxins, nutritive disturbances and other factors. He describes infiltrative and late degenerative changes and epithelial and endothelial proliferation, together with pustular and necrotic changes, and differentiates cutaneous syphilitic changes into six types. His incomplete investigations on syphilis of the inner organs and the nervous system point to changes analogous to the cutaneous changes, with the absence of pustule formation.

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THE VOLUME OF THE CIRCULATION AND ITS REGULATION BY THE VENOPRESSOR MECHANISM *

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The volume of the circulation is the size of the blood stream pumped through the lungs and out to all the organs of the body by the heart. It is not the same thing as the total blood volume of the body. The blood volume is measured simply in liters or in liters per kilogram of body weight. The volume of the circulation is measured in liters of blood flow per minute.

It is merely a coincidence that in a resting man of average size the heart pumps each minute a volume which is about equal to all the blood in the body.[1] In small animals, with their high metabolism, the heart beats so rapidly and the volume of the circulation is so large that, as an average, each particle of blood goes round the circulation two or three times each minute. In large animals the heart beats more slowly and the circulation also is slower. In the horse during rest the volume pumped each minute is probably equal to about half the total blood volume, and on the average each particle of blood circulates only once in two minutes or more.

During physical exertion the heart rate is quickened and the strokes are probably also larger, so that the volume of the circulation is greatly increased. The blood volume of course remains unchanged. The blood in active circulation flows more rapidly; and in addition a considerable volume of blood, which was previously stagnant in such reservoirs as the spleen[2] and the liver,[3] is added to the stream. The circulation is thus enabled to carry the increased amount of oxygen required by the actively working muscles.

The factor of dominating importance in determining the volume of the circulation is the amount of oxygen consumed by the body. Most of the symptoms that develop in the various forms of heart disease are due to failure of the circulation to maintain its respiratory function, particularly the transportation of oxygen from the lungs to the tissues. In the athlete, as in the cardiac patient, the limit on physical exertion is set by the capacity of the heart to pump a sufficient blood stream to supply the oxygen that the active tissues demand.

The volume of the circulation during rest is closely related to the total oxygen consumption of the body; for the blood stream under basal conditions is about twenty times as large as the volume of oxygen absorbed in the lungs each minute. The volume of air drawn into the lungs each minute and the volume of the blood pumped through the lungs in that time are approximately equal. During bodily rest both are about 5 liters a minute. The air loses about 5 per cent of its volume of oxygen and the blood in taking up this amount of oxygen gains about 5 volumes per cent of that gas. During physical activity, however, the volume of air breathed increases much more than the volume of blood pumped. The pulmonary ventilation may increase to 50 liters or more a minute, while the circulation increases to 20 or 25 liters. As an average, each corpuscle then makes the round of the circulation three or four times a minute. The air still loses about 5 per cent of its volume of oxygen, while the blood, if its stream is only half as large as the volume of air, would gain 10 volumes per cent of oxygen. These, broadly speaking, are the conclusions supported by evidence from many methods and numerous investigators.

The correctness of this estimate of the volume of the circulation during rest has been confirmed recently by Baumann and Lauter,[4] who, in checking the ethyl iodide method, found that without injury to the patient blood may be withdrawn from the right side of the heart through a hypodermic needle inserted through the body wall, and by Klein,[5] who has inserted a catheter through the jugular vein. When this blood is analyzed, it is found to contain about 5 volumes per cent less oxygen and 4 volumes per cent more carbon dioxide than blood taken simultaneously from an artery. These figures, combined with those for the oxygen absorbed and the carbon dioxide exhaled from the lungs, give all the data necessary for calculating the volume of the circulation by the so-called Fick principle used in animal experimentation.

While it is satisfactory to have this knowledge, it is extremely improbable that the method of heart puncture in man will become a common procedure for diagnosis or investigation. There is still great need, therefore, for a method for the indirect estimation of the volume of the circulation in man. Such measurements would probably be as significant and instructive regarding

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* From the Laboratory of Applied Physiology, Sheffield Scientific School, Yale University.

* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Henderson, Yandell: The Efficiency of the Heart and Its Measurement, Lancet **2**:1265 (Dec. 19), 1317 (Dec. 26) 1925; Volume Changes of the Heart, Physiol. Rev. **3**:165 (April) 1923. Eppinger, H.; Kisch, F., and Schwarz, H.: Das Versagen des Kreislaufes. Berlin, 1927.

[2] Barcroft, Joseph: Recent Knowledge of the Spleen, Lancet **1**:319 (Feb. 14) 1925; Some Recent Work on the Functions of the Spleen, ibid. **1**:544 (March 13) 1926.

[3] Mautner, H., and Pick, E. P.: Ueber die durch Schockgifte erzeugten Zirkulationsveränderungen: III. Der Einfluss der Leber auf Blutdruck und Schlagvolumen, Arch. f. exper. Path. u. Pharmakol. **142**:271, 1929.

[4] Baumann, H., and Lauter, S.: Ueber die Brauchbarkeit der Aethyljodidmethode (Henderson-Haggard) zur Ermittelung des Herzschlagvolumens, Klin. Wchnschr. **7**:2000 (Oct 14) 1928.

[5] Klein, O.: Zur Bestimmung des zirkulatorischen Minutenvolums beim Menschen nach den Fickschen Prinzip (Gewinnung des gemischten venösen Blutes mittels Herzsondierung), München. med. Wchnschr **77**:1311 (Aug. 1) 1930.

conditions of health and disease as are present determinations of arterial pressure and the electrocardiogram.

MEASUREMENT OF THE CIRCULATION

There have been many attempts to develop an indirect method of measuring the circulation. The pressures of oxygen and of carbon dioxide in the arterial blood are the same as in the alveolar air of the lungs; and this air, as Haldane and his collaborators [6] showed, can be obtained by deep expiration. To determine the gas pressures in the venous blood returning to the lungs is more difficult. If air or, better, a mixture of oxygen and carbon dioxide is breathed, it tends to assume the gas pressures in the venous blood coming to the lungs. For technical reasons no reliable figure for the venous oxygen is obtainable in this way. But, as Henderson and Prince [7] showed, a fairly definite figure for the "virtual venous carbon dioxide pressure" is obtainable on trained subjects. Methods for estimating the volume of the circulation by means of these two procedures, for "arterial air" and "venous air," combined with determinations of the respiratory exchange of oxygen and carbon dioxide, have been extensively used in recent years and have produced valuable results.[8] All such methods have, however, the great practical defect that they require the active cooperation of the patient who is being observed. They seem, therefore, to afford little promise for clinical use in the wide variety of problems now urgently demanding study.

The same limitation applies to most of the methods that have been suggested for estimating the volume of the circulation by inhalation of nitrous oxide, ethylene and acetylene.[9] With all such methods the object is to determine how much of the gas is absorbed from the lungs and what concentration the blood holds. The observation is considered to be vitiated if it lasts so long that some of the blood that has once passed through the lungs returns holding some of the gas in solution. The whole procedure of inhalation and sampling is therefore completed in a fraction of a minute; and for this the active and even skilled cooperation of the subject is required.

One gas or vapor, namely, ethyl iodide, has a property which to some extent makes it usable without the cooperation of the subject or patient. It is decomposed in the body. If its decomposition were complete and instantaneous, so that none of the gas returned to the lungs in the venous blood, ethyl iodide would afford the ideal means for indirect measurement of the circulation for clinical purposes. Henderson and Haggard [10] believed that such was the case, but a large amount of discussion and investigation by others has shown that nature has not provided in ethyl iodide quite so perfect a means of obtaining the object in view. While the substance is decomposed in the body, the decomposition is not instantaneous. Starr and Gamble [11] have shown, however, that by rebreathing, even without the cooperation of the subject, a sample of lung air in equilibrium with the venous blood in respect to ethyl iodide is easily obtainable. Along this line a method free from theoretical objection and clinically applicable is now being developed by Starr and his collaborators.[12]

Even in its initial form the ethyl iodide method has found extensive and highly instructive clinical application in this country [13] and in Germany.[14] The figures for the relative efficiency of the circulation in health and in cardiac and other diseases obtained by this method agree satisfactorily with the results of clinical examination. Doubtless, in time, either by means of ethyl iodide or by some other technic, the problem of measuring the volume of the circulation will be solved as effectively as has been that of measuring arterial pressure. It will unlock many secrets.

THE FACTOR DETERMINING THE VOLUME OF THE CIRCULATION

I will turn now to the broader questions: What determines and regulates the volume of the circulation in all the wide variations of bodily activity in health? What is the cause of the decreased circulation after surgical operations without hemorrhage, after physical suffering and in illness?

Twenty years ago the answer would have been: The vigor of the heart's activity determines the volume of the blood stream. A "weak heart action" is still spoken of in many conditions of acute disease or after major surgical operations or hemorrhage. But the development of physiology has demonstrated that the heart itself is not at fault; in reality, it is the volume of the venous return to the right side of the heart that is deficient. The deficiency and failure that generally bring the circulation to a standstill and thus lead to the vast majority of all deaths among mankind lie in a factor which many years ago I named the "venopressor mechanism." [15]

Unfortunately, I had to stop with a name; and no one has yet adequately explained exactly what the name stands for. I propose now to attempt again to define it.

The circulation should, I think, be conceived, not as a balance of two mechanical factors only, the heart and the vasomotor system, but rather of three factors. It is supported like a tripod that falls if any one of its three legs fails. The heart pumps the blood onward: the vasomotor nervous system regulates the caliber of the finer blood vessels and thus determines the arterial resistance and pressure. But it is chiefly a third factor, the venopressor mechanism, that pushes the blood back through the veins toward the right side of the heart. This third factor is augmented to support the increased circulation in an athlete during exertion. It is depressed in illness and is the chief cause of the decreased circulation in acute disease. Certainly the heart can pump onward only such a volume as the venous return brings to it.

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[7] Henderson, Yandell; and Prince, A. L.: Applications of Gas Analysis: II. The CO$_2$ Tension of the Venous Blood and the Circulation Rate, J. Biochem. **32:** 325 (Dec.) 1917; Arch. néer. de physiol. **7:** 378, 1922.

[8] Field, H.; Bock, A. V.; Gildea, E. F., and Lathrop, F. L.: The Rate of the Circulation of the Blood in Normal Resting Individuals, J. Clin. Investigation **1:** 65, 1924. Richards, D. W., and Strauss, M. L.: Carbon Dioxide and Oxygen Tensions of the Mixed Venous Blood of Man at Rest, *ibid.* **9:** 475 (Dec.) 1930.

[9] Grollman, Arthur: A Comparison of the Triple Extrapolation (Fick Principle) and the Acetylene (Foreign Gas Principle) Methods for the Determination of the Cardiac Output of Man, Am. J. Physiol. **93:** 116 (May) 1930.

[10] Henderson, Yandell; and Haggard, H. W.: The Circulation and Its Measurement, Am. J. Physiol. **73:** 193 (June) 1925. Brocklehurst, R. J.; Haggard, H. W., and Henderson, Yandell; Comparative Measurements of the Circulation in Man with Carbon Dioxide and with Ethyl Iodide, ibid. **82:** 504 (Nov.) 1927.

[11] Starr, Isaac, Jr., and Gamble, C. J.: An Improved Method for the Determination of Cardiac Output in Man by Means of Ethyl Iodide, Am. J. Physiol. **87:** 450 (Dec.) 1928.

[12] Starr, Isaac, Jr., and Collins, L. H., Jr.: Studies of Cardiac Output in Normal Men, Am J. Physiol. **96:** 228 (Jan.) 1931.

[13] Ringer, Michael; and Altschule, Mark: Studies on the Circulation, Am. Heart J. **5:** 305 (Feb.) 1930.

[14] Mobitz, W.: Die Ermittlung des Herzschlagvolumens des Menschen durch Einatmung von Aethyljodiddampf: IV. Deutsches Arch. f. klin. Med. **157:** 359, 1927. Lauter, S., and Baumann, H.: Ueber den Kreislauf bei sogenanten Fettherzen, Klin. Wchnschr. **7:** 741 (April 15) 1928.

[15] Henderson, Yandell: Acapnia and Shock: II. A Principle Underlying the Normal Variations in the Volume of the Blood Stream, and the Deviation from This Principle in Shock. Am. J. Physiol. **23:** 345, 1909; VII. Failure of the Circulation, ibid. **27:** 152, 1910. Henderson, Yandell; and Harvey, S. C.: VIII. The Venopressor Mechanism, ibid. **46:** 533 (Aug.) 1918. Henderson, Yandell; and Barringer, T. B.: The Conditions Determining the Volume of the Arterial Blood Stream: I The Heart as the Meter of the Circulation, ibid. **31:** 288, 1913; The Relation of Venous Pressure to Cardiac Efficiency, ibid. **31:** 352, 1913; The Influence of Respiration upon the Velocity of the Blood Stream, *ibid.* **31:** 399, 1913.

The discovery that there must be some venopressor mechanism came about in this way: Harvey, in describing the heart beat, said "The auricle contracts and forces the blood it contains into the ventricle. The ventricle then contracts and ejects the blood into the arteries." In studying the volume curve of the heart many years ago, however, I[16] found that the ventricles are filled nearly full by venous pressure even before the auricle contracts. This observation led on to prolonged study by me, and then by many others, of that process by which, as Harvey says, "the auricles are filled as magazines or reservoirs of the blood, which is tending spontaneously and, by the motion of the veins, under pressure toward the center." Harvey recognized the venous return.

A clear-cut demonstration of the action of the venopressor mechanism, whatever it is, is afforded by an experiment recently described by Riml.[17] If the chest of a rabbit is opened and the pulmonary artery is clamped, the pressure in the vena cava rises within a minute to 10 cm. of water. If the vena cava is opened, 50 per cent of all the blood in the body flows out quickly, even when opposed by a pressure of a centimeter of water. What is the nature of the force which thus squeezes the blood back toward the heart? In the textbooks the "vis a tergo," or push from behind, imparted by the heart to the blood in the arteries, and from the arteries through the capillaries to the veins, is always given as the force sending blood back to the heart. But in this experiment the fact that the pulmonary artery is clamped effectually eliminates the push of blood into the arteries by the heart. There is here involved some elastic contraction, some pressure on the blood vessels, that squeezes the blood out of the tissues of the body and thus forces it on through the veins toward the heart.

Doubtless the vasomotor nervous system plays a part in the venous return, for there are nerves to veins as well as to arteries. The spleen has been shown by Barcroft[2] to be a reservoir from which blood is thrown into active circulation during physical exertion. A similar action of the liver has been demonstrated by Mautner and Pick.[3] But something more is needed to effect the enormous variation in the venous stream to the heart seen, at one extreme, in an athlete under great exertion and, at the other extreme, in a patient in profound physical depression. What is it?

After a search that has lasted for more than a quarter of a century, I have recently come to the conviction that the venous return to the heart is chiefly determined by the general tonus of all the skeletal muscles of the body, more especially of the abdominal muscles and particularly the diaphragm, as well as the nonstriated musculature of the alimentary canal; and that the element which influences this tonus to exert a greater or lesser pressure on all the tissues of the body and on the blood which they contain, driving it back toward the heart, is the state and control of respiration in its broadest sense. The circulation in its chief function, the transport of gases, is essentially a part of respiration. In general, the degree of activity of respiration, the general tonus of the body and the volume of the circulation vary together. These three functions increase and decrease in close relation to one another, alike in the normal man at rest and under physical exertion, as well as in the sick and the dying. Accordingly, it is found that in the physical depression after major surgical operations certain conditions occur simultaneously: the diaphragm is relaxed, the vital capacity of the lungs is decreased, the tonus of the skeletal muscles and alimentary canal is lowered, and the volume of the circulation is diminished. Recent clinical experience demonstrates that under such stimulation of respiration as is induced by inhalation of carbon dioxide all these aspects of depression improve together: respiration, general muscle tonus and the circulation are restored toward normal conditions.[18]

In the daily life of a normal man such exercise as a walk induces for a time a higher muscle tonus, a more active respiration and a fuller circulation. Even as this paper was being written observations by others have appeared which seem to accord with the general conception that these effects are fundamentally related. King, Blair and Garrey[19] find that with each inspiration such indexes of muscular tonus as the knee jerk and achilles reflex are increased in intensity. Barcroft and Verzár[20] find that under exposure to cold the pulse rate is increased with each access of shivering. Presumably the volume of the circulation is increased with the pulse. Shivering is excessive tonus.

Especially significant is the fact, demonstrated by Hess,[21] that the movements of respiration do not consist merely in alternate contraction and relaxation of the thoracic muscles but that, at each breath, these muscles pass from one tonus level to another and back again. When respiration is depressed, as after anesthesia and operation, muscular tonus is low, the thorax is collapsed, the diaphragm is relaxed and the lungs are deflated. When respiration is stimulated by physical exercise or by inhalation of carbon dioxide, musclar tonus is high, the thorax is expanded and the lungs are fully inflated.

Tissue tonus is one of the most fundamental properties of life. It keeps the fluids within the tissues at a pressure above that of the outside world. This property is intimately associated with tissue respiration. It is probably the factor which in primitive forms of life produces the first elementary circulation, even before a heart is developed and long before the vasomotor nervous system appears. In this aspect the venopressor mechanism is the most elementary and fundamental factor in the circulation.

In the medicine of our forefathers a generation or two ago the drug which more than any other was used to support and improve the circulation was strychnine. In its action on the reflex centers of the nervous system strychnine is, in a sense that no other drug attains, a true tonic, a stimulant for muscular tonus. Increased tonus increases the general respiratory metabolism of the body; and by the tonic pressure of the muscles on their own substance and on all the other tissues, except the skin, this tonus aids the venous return to the heart. If the general idea here presented is correct, strychnine, much more than epinephrine, with its merely momentary influence on vasomotor nerve endings, is the drug to support a depressed circulation.

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[16] Henderson, Yandell: The Volume Curve of the Ventricles of the Mammalian Heart, and the Significance of This Curve in Respect to the Mechanics of the Heart-Beat and the Filling of the Ventricles, Am. J. Physiol. **16:** 325, 1906.

[17] Riml, O.: Ueber das Verhalten des Blutdruckes in der Vena cava bei plötzlichem Zirkulationsstillstande, Arch. f. exper. Path. u. Pharmakol. **139:** 231, 1929.

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[20] Barcroft, Joseph; and Verzár, F.: The Effect of Exposure to Cold on the Pulse Rate and Respiration of Man, J. Physiol. **71:** 373 (April 24) 1931.

[21] Hess, W. R.: Kritik der Hering-Breuerschen Lehre von der Selbststeuerung der Atmung, Arch. f. d. ges. Physiol. **226:** 198, 1930; Die Regulierung der Atmung, Gleichzeitig ein Beitrag zur Physiologie des vegetativen Nervensystems, Leipzig, Georg Thieme, 1931.

In normal life the increase in the volume of the circulation at the beginning of physical exercise depends largely on the active contraction of the skeletal muscles pumping blood onward, raising venous pressure and supplying a larger volume to the right side of the heart. Simultaneously, and largely under the same mode of stimulation, respiration is increased and its muscles are contracted. The mean position of the diaphragm is lowered, expanding the thorax, compressing the abdominal viscera, increasing the difference of pressure in these two body cavities and augmenting the venous blood stream to the heart.

Thus three factors essential to the dynamics of the body—muscular contraction, respiration and the circulation—are coordinated in health. So also they generally fail together after illness and in postoperative depression; then muscular tonus is low, respiration shallow, the diaphragm relaxed, and the venous stream to the right side of the heart diminished. Such parallelism indicates a fundamental connection between the functions concerned and suggests therapeutic applications of far reaching importance.

CONCLUSION

The volume of the circulation, or amount of blood pumped each minute by the heart, is about twenty times as large as the volume of oxygen absorbed from the lungs in the same period. In a normal man at rest, it is a stream that is equal each minute to the entire blood volume of the body. It is much larger during physical activity, and much smaller during illness and postoperative depression.

Investigations in recent years have yielded knowledge of great general value regarding the circulation in health and disease, but not as yet an entirely satisfactory clinical method for measuring its volume. Such a method will afford information as instructive as that now obtained by means of the sphygmomanometer or the electrocardiograph.

The factor that chiefly determines the volume of the circulation is the venous return to the right side of the heart. This factor conditions both increase and decrease of the circulation. During physical exercise the heart can pump onward through the lungs and into the arteries only the volume that comes to it through the veins. In illness a failing heart is generally due rather to an inadequate venous return of blood than to depression of the strength of the heart itself.

The blood is not merely pushed back to the right side of the heart by the pressure transmitted from the left side of the heart through the arteries and capillaries to the veins; nor is the venous return due in the main to the vasomotor control of the blood vessels. According to the view here presented, this vitally important third factor in the circulation is maintained and varied chiefly by quite another force; namely, the general tonus of the musculature of the body. This tonus, by the pressure which it exerts on the tissues and the blood within them, and especially on the abdominal viscera, is the force which in health maintains and varies the volume of the venous return. In illness the depression of muscular tonus permits a stagnation of blood in the tissues and a consequent failure of the venous return.

Both in health and in illness the general muscular tonus, the volume of the circulation and the activity of respiration are increased and decreased in closely parallel relation and largely by the same influences.

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ABSTRACT OF DISCUSSION

Dr. Isaac Starr, Jr., Philadelphia: There can be no doubt of the importance of the problems suggested by Professor Henderson. One thinks of the heart as a pump and one assigns no other function to it. To calculate the heart's work, one must know its output and the blood pressure. Certainly the problem of ascertaining cardiac work in clinical conditions is fundamental to a complete understanding of the heart in health and in disease. But I feel convinced that much work on this subject has been premature. The pertinent question is, Are the methods at present available adequate to attack this problem clinically? I am beginning to feel encouraged. A few years ago various methods gave irregular results on the same subject under similar conditions. There was no agreement as to the average basal cardiac output. Now there are methods available which both give consistent results on certain subjects and show good agreement as regards the average level of cardiac output of normal young men in the basal condition. It is reassuring when methods which differ so widely that they have practically nothing in common, as the cardiac puncture method of Lauter and Baumann, the Marshall and Grollman modification of the Krogh and Lindhard method, my modification of the ethyl iodide method, and certain other methods, all indicate an average basal cardiac output of normal young adult males of about 4 liters per minute or 2 liters per square meter of body surface per minute. I doubt whether the cardiac puncture method will have general applicability but this bold procedure has done a great deal to clear the air. The method employs the Fick principle directly and therefore older methods employing it indirectly and yielding different results should be reinvestigated. Therefore I feel that the time has come when the investigation of clinical problems must be attempted. In dealing with patients, new difficulties will be encountered. Certain types of problems cannot yet be investigated by the gas methods; namely, those conditions in which equilibrium between gas tension in alveoli and blood is disturbed, or in which alveolar air cannot be obtained. In order to make the results comparable, it will probably be necessary to determine the cardiac output of patients in the basal condition. I think that many working in this field are beginning to realize the difficulties of holding the cardiac output at the basal level. I am inclined to think that the inconsistencies of the results obtained by some methods in the past may be due not to any fault in estimating cardiac output but rather to the fact that the excitement incident to the cooperation of the subject changed his cardiac output.

Dr. J. A. E. Eyster, Madison, Wis.: For years I have been interested in a different method for estimating cardiac output. Teleroentgenograms of approximately one-fiftieth second exposure are made during the periods when the heart is at its maximum and minimum volumes. The volume of the heart is estimated at these two instants from the plane area of the silhouettes and the difference between these volumes represents approximately the stroke volume or the amount of blood forced out in a single beat. The technical difficulties of the method are rather great and there are in addition certain theoretical objections, but it has the advantage that it does not require the cooperation of the subject. It is interesting, however, that the results obtained by this method check quite closely with those obtained by the gasometric method. In forty normal young adults I have found an average output of 1.9 cc. per kilogram per beat from the two ventricles, or 0.9 cc. from each ventricle, which is close to the figure given by Dr. Henderson.

Dr. L. N. Katz, Chicago: It is not clearly appreciated, I think, that the methods of determining rate of outflow are not yet applicable to all clinical conditions. The clinician interested in determining the blood flow in heart failure will find the methods unsuitable as they stand at present. This is particularly true of the methods requiring rebreathing, because an equilibrium of the gases in the alveoli and the sampling bag is not reached in the period of time set for the test. The clinician should realize, therefore, that the methods need considerable improvement before they can be applied to clinical patients with heart failure.

Dr. Carl J. Wiggers, Cleveland: My practical experience with such methods is nil and I can judge them only by applying the intelligence of the average physiologist. It is my belief that they all fall into a category of being only relatively exact. I am sure the speakers will all agree with that. This does not prevent one from continuing his efforts to get more exact methods. There is perhaps the same situation in basal metabolism studies, my opinion being that they also are not as exact as most physicians are inclined to believe. I speak a word of appreciation for the venopressor concept that Dr. Henderson introduced many years ago. Dr. Henderson has made a number of valuable contributions to practical physiology. Among these is the concept of the venopressor mechanism, in which I thoroughly believe. The amount of blood returned to the heart is an important factor in determining how much the heart pumps out, and though there still are minor differences of opinion as to just how this operates, I am thoroughly convinced that it is an extremely important mechanism, which physicians must keep in mind. Recently it occurred to me that there might possibly be some specific effect of carbon dioxide on the heart muscle, that it might either stimulate the heart muscle like digitalis, for example, or that it might depress it. A year or two ago I published the results of a series of investigations in which all the conditions of the heart were kept the same, the heart rate, the venous pressure and the arterial resistance. I could find absolutely no direct effect of carbon dioxide on the heart. It neither stimulates nor depresses the heart. Hence I reached the conclusion that all the effects that it produces in exercise probably operate through this venopressor mechanism, the conception of which was evolved by Dr. Henderson.

Dr. D. C. Sutton, Chicago: I believe that the effect of muscle tone is an extremely important thing from a clinical point of view. I think all physiologists who work in the clinic are able to appreciate the fact that not only in shock but also in actual cardiac failure from different forms of heart disease the general muscle tone plays a large part in the functioning of the heart. I should like to ask Dr. Henderson what suggestions he might have to produce muscle tone artificially and whether carbon dioxide may not have a direct effect on the heart muscle. In moderate degrees of decompensation, exercises of various types greatly increase the effectiveness of the heart.

Dr. H. C. Bazett, Philadelphia: There is one question I should like to ask Dr. Henderson. I am enthusiastic about his ideas of the venopressor mechanism. But if an individual is exposed to heat, there is a tremendous muscular relaxation. There is a relaxation of all the veins that are superficial, and yet as far as data are available, the circulation rate is increased some 20 to 30 per cent. I wonder whether he has any information as to the effects of temperature on the deeper veins as opposed to more superficial veins.

Dr. A. C. Ivy, Chicago: There is one question I should like to ask Dr. Henderson. Is it possible, as he mentioned, that we shall have no readily available method for following cardiac output in patients? It is a general clinical impression that patients react differently to an anesthetic and to surgical procedures. If the venopressor mechanism plays an important rôle, is it not possible that some test might be devised and applied to the patient prior to the operation which would enable one to predict whether or not the venopressor mechanism of the patient is more susceptible than the average? If the patient was known to be susceptible, the clinician would be on his guard. If some simple test of the venopressor mechanism might be devised, it would be of great value.

Dr. Yandell Henderson, New Haven, Conn.: The general physical condition of a patient is expressed in the tonus of his muscles. If his condition is good and tonus is high, he can rise from a recumbent to a standing position suddenly with no considerable fall of arterial pressure. If his condition is poor and tonus low, the venous return is diminished, the heart action is thereby weakened, arterial pressure falls, and fainting may result. Venous congestion in heart disease may be due in part at least to the effect on internal respiration of an insufficient oxygen supply to the tissues because of a slow circulation. If this condition induces an abnormal tonus, an abnormally high venous pressure would result. This idea is as yet largely hypothetical; but in cases of nephritis with heart disease I have seen increased breathing with normal venous pressure on one day and a day or two later normal breathing with abnormally high venous pressure. Further work on this problem is needed. High external temperature, as in a Turkish bath, certainly does not raise venous pressure. It merely causes a relaxation of the cutaneous blood vessels and particularly of the veins. The skin is the one organ that is not affected by muscle tonus. It lies outside the muscles and thus outside the venopressor mechanism. Muscle tonus is closely associated with respiration. Dr. Garrey has recently shown that with every inspiration the tonus rises and with expiration it falls. With increased respiration under exercise, the tonus of the entire musculature of the body increases and the return of blood to the heart is accelerated. As Dr. Wiggers says truly, none of the present methods of measuring the circulation are exact. But their general teaching is clear. The control of the venous return is the factor that chiefly determines the efficiency of the heart action and the volume of the circulation. Before long, I believe, there will be sufficiently exact methods to make clinically valuable measurements of the circulation. Dr. Eyster's statement that he has developed a method of measuring the stroke of the heart by means of the x-rays is of great importance. It will be a race between Dr. Eyster with that method and Dr. Starr with the ethyl iodide method. I hope that in this race both win. I question whether it is necessary, or at least significant, to have strictly basal conditions for measurement of the circulation. What one wants to know is the volume of blood pumped under the ordinary conditions of life, and not merely in bed without breakfast. Dr. Starr is, however, correct in insisting on strictly basal conditions, at least for all investigative work.

VENOUS PRESSURE *

J. A. E. EYSTER, M.D.
MADISON, WIS.

Recent work on the part of a number of observers has thoroughly established the importance of a knowledge of venous pressure in certain clinical states and has extended and amplified its significance in the dynamics of the failing heart. The main conclusions from these observations[1] may be briefly stated as follows:

1. The venous pressure measured in a peripheral vein placed at the level of the right auricle, with the subject in a recumbent or semirecumbent position at body rest, does not exceed 110 mm. of water unless the heart is incompetent and is failing to meet fully the demands for circulatory maintenance. This appears to be true in all clinical states other than cardiac failure, the only exceptions being some localized obstruction to venous return.

2. Venous pressure in cardiac incompetence varies from the upper normal level to 300 mm. of water or

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* From the University of Wisconsin Medical School.

* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Eyster, J. A. E., and Middleton, W. S.: Clinical Studies on Venous Pressure, Arch. Int. Med. 34: 228 (Aug.) 1924. Eyster, J. A. E.: Venous Pressure and Its Clinical Applications, Physiol. Rev. 6: 281 (April) 1926. Clinical Aspects of Venous Pressure, New York, Macmillan Company, 1929.

more. The extent of the failure is roughly proportional to the rise, and the clinical progress of the patient and the prognosis of the condition are in large part revealed by the trend of venous pressure.

3. Venous pressure is clinically an index of cardiac function and reveals cardiac incompetence independently of the cause of the failure. It is thus of equal importance in primary failure due to cardiac disease or to the secondary failures encountered in pneumonia[2] and in other conditions leading to toxemia of the muscle or to cardiac overload.

4. In many cases a change in venous pressure precedes other signs of clinical change, and frequent observation of venous pressure in cardiac incompetence is of assistance in the rational therapy of this condition. Especially important in this connection is the value of venous pressure as one of the indications for venesection and the index that it gives as to the effectiveness of this therapeutic procedure.[3]

5. The clinical significance of venous pressure thus appears to be confined to a single but important condition; namely, impending or present cardiac incompetence. Its usefulness is thus limited but of exceptional importance in its restricted field.

Experimental and clinical studies of venous pressure have also enlarged and clarified our conception of the mechanics of the normal heart and its change in cardiac failure. In the normal individual under normal activity the factors controlling the peripheral systemic circulation—the vasomotor nerves, the effect of chemical agencies on vascular tonus, and the mechanical influence of skeletal muscle contraction—may greatly alter the amount and pressure of the venous blood returning to the right auricle. This in turn determines the energy released by the contracting heart and the amount of blood it forces from the venous to the arterial side of the circulation. The normal heart is thus a self regulated pump which, through a property of its muscle, releases energy in proportion to the demand made on it. Because of this property it tends to prevent undue accumulation of blood within the venous system and to maintain venous pressure, except for transitory changes, at an approximately constant level, even in the presence of wide variations in peripheral vascular flow.[4] The normal heart is thus characterized by its ability to increase, within wide limits, its functional capacity with increasing loads. The upper range of venous pressure within which the heart is able to respond by increased work may be defined as the cardiac reserve.[5] There is evidence, both from experiments on laboratory animals and from observations on man, that this range in the normal heart is never exceeded, except under extreme laboratory conditions. The effect of damage to the heart muscle, resulting from toxemia or from malnutrition with degenerative changes, is to narrow this limit of response, to decrease the cardiac reserve and to bring its upper limit to the point at which there is failure to respond effectively to the existing venous load. Cardiac incompetence then appears and continues until, by the institution of physical rest, venesection and procedures in general which tend to lower venous pressure or to reduce the volume of blood in the venous system, or by other efforts directed toward an improvement of cardiac response by digitalization or similar therapy, the upper range of response of the cardiac muscle is carried beyond the existing venous pressure. The heart now regains its ability to move the returning venous blood adequately, and competence is regained. Cardiac incompetence may thus be described as that condition in which the venous pressure exceeds the range within which the heart is capable of responding by increased work to increased venous load. There is abundant evidence to prove that it occurs primarily as the result of a narrowing of the range of response, because of injury to the heart muscle. In valvular heart disease this injury appears to be the degenerative changes that tend to appear early in the hypertrophic heart muscle. Hypertrophy increases temporarily the range of response but leads, on the other hand, to the early onset of malnutrition and degeneration.[6]

Recent work, largely of an experimental nature, has also tended to emphasize the relation of venous pressure to the production of heart muscle dilatation and hypertrophy, conditions invariably found associated with valvular heart disease. In this I have reference not to the rises of venous pressure to which the normal heart is exposed under the exigencies of life but to the abnormal loads that occur when a valve becomes defective as a result of disease or experimental procedure, or to abnormal loads which may be produced in laboratory experiments. It has been shown that heart dilatation, followed by hypertrophy, occurs in the experimental animal as a result of experimental venous overload, even though this abnormal state lasts for a relatively short period. Such short periods of overload have been produced experimentally by constricting bands placed temporarily around the aorta of dogs[7] and by massive blood transfusions leading to an immediate increase of blood volume from 70 to 100 per cent.[8] The dilatation

Heart Weight-Body Weight Ratio in One Hundred and Ninety-Six Normal Dogs

Dog	Duration After Operation, Days	Time After Operation Before Exercise, Days	Duration of Exercise, Days	Average Time of Exercise a Day, Minutes	Heart Weight-Body Weight Ratio at Autopsy	Difference of Ratio from Normal of 0.00748, per Cent	Change in Roentgen Area in per Cent of Initial Area Before Exercise	Change in Roentgen Area in per Cent of Initial Area After Exercise
L..	272	...	..	..	0.01013	+35.5	+ 4.0	......
O..	242	...			0.01080	+31.2	+ 0.9	......
N..	260			.	0.00866	+15.9	+ 2.2	......
I...	291	.	.	..	0.00718	— 3.9	+ 3.9	......
J..	283		.	..	0.00658	—11.9	— 6.2	......
T..	96	.	..	.	0.00795	+ 6.4	......	......
Average..					0.00855	+ 12.2	+ 0.3	
P 3..	41	21	11	23	0.00896	+ 19.6	+ 4.0	......
P 4..	20	13	7	7	0.00934	+25.0	— 3.4	......
P 5..	29	11	12	36	0.00868	+16.2	+ 7.0	......
P 9....	63	30	11	41	0.00781	+ 4.5	—13.5	—24.0
Average....					0.00869	+16.3	— 0.7	
P 1....	215	36	56	47	0.00959	+28.3	— 1.8	+ 3.7
P 2....	206	28	56	45	0.01204	+61.1	+ 2.2	+24.0
P 6....	178	9	46	44	0.01097	+46.5	......	+10.0
P 7....	102	22	21	42	0.01221	+63.9	+10.2	+11.0
P 8....	77	16	31	45	0.01097	+46.5	— 5.6	— 2.0
P 11....	63	24	21	61	0.01061	+36.0	......	— 0.7
P 12....	50	24	22	60	0.01106	+48.0	......	......
H....	320	268	40	64	0.01163	+55.6	+ 6.7	+20.0
P.	165	134	29	48	0.01113	+48.9	+16.2	+ 4.5
M.	259	225	34	67	0.01103	+47.8	+ 6.4	+ 8.9
G....	360	275	40	50	0.00942	+26.8	+ 9.0	+13.6
Average....					0.010972	+46.59	+ 3.9	+ 8.46

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[2] Kaltlin, G. J., and Maclachlan, W. W. G.: Venous Pressure in Pneumonia, Ann. Int. Med. **4:** 959 (Feb.) 1931.

[3] Eyster, J. A. E., and Middleton, W. S.: Venous Pressure as a Guide to Venesection in Congestive Heart Failure, Am. J. M. Sc. **174:** 486 (Oct.) 1927.

[4] Eyster, J. A. E., and Meek, W. J.: Studies on Venous Pressure, Am. J. Physiol. **95:** 294 (Nov.) 1930.

[5] Eyster, J. A. E.: Venous Pressure in Cardiac Decompensation, J. A. M. A. **89:** 428 (Aug. 6) 1927.

[6] Eppinger, H., and Knafl: Ueber Herzensufficienz, Ztschr. f. exper. Path. u. Therap. **5:** 77, 1909.

[7] Eyster, J. A. E.: Cardiac Dilatation and Hypertrophy, Tr. A. Am. Physicians **42:** 15, 1927.

[8] Eyster, J. A. E.: Experimental and Clinical Studies in Cardiac Hypertrophy, J. A. M. A. **91:** 1881 (Dec. 15) 1927.

thus produced is comparable to that resulting from an experimental valve injury [9] and results from an abnormal diastolic residuum of blood in the heart. The load is temporarily greater than can be moved, and dilatation with abnormal stretching of the muscle results. This leads to injury to the muscle, as is evident on microscopic examination. Hypertrophy of the muscle follows and occurs whether the initial derangement is permanent, as in destruction of a leaflet of the aortic valve, or is transitory, as previously described.

In my experience, the venous overload associated with extreme physical activity in man or the experimental animal does not lead to dilatation and hypertrophy, so long as the heart is normal. My associates and I have in progress now two series of experiments, designed to test the effect of the high venous loads encountered in extreme physical activity in animals in which the cardiac mechanism is impaired. The first series is concerned with the possible restraining influence of the pericardium in preventing, in the normal animal, the degree of dilatation sufficient to initiate hypertrophy.

As a preliminary to this study, we have determined the heart weight-body weight ratio in a series of 196 normal dogs. Eighty-six per cent of these fell within ± 20 per cent variation from the average ratio of 0.007478. The pericardium was removed under aseptic precautions from twenty-four normal dogs (table). Teleroentgenograms were made before the operation and at weekly intervals thereafter. The animals were finally killed and the heart weight-body weight ratio determined for comparison with the normal series. The first group of six animals were kept in the kennels for periods of from 96 to 283 days. At the end the roentgen determinations did not show any evidence of cardiac dilatation or hypertrophy. The heart weight ratio appeared high in two, while two were below the average normal, and the average for the group of a + 12.2 per cent variation was inconclusive as regards the occurrence of hypertrophy. A second group of three animals (not shown in the table) were submitted to mild exercise on a tread mill for sixty days, the exercise consisting of a 2 mile run over a period of thirty minutes on a grade inclined upward at an angle of 15 degrees. This group likewise did not show any conclusive evidence of cardiac dilatation or hypertrophy. A third group was submitted to what may be considered as moderate exercise over a relatively short period. These animals swam for from seven to forty-one minutes a day in a large swimming tank over a period of from seven to fourteen days. The evidence for the development of cardiac dilatation and hypertrophy was again inconclusive. Finally, a fourth group of eleven dogs was submitted to severe exercise, swimming continually for from forty-two to sixty-one minutes daily over a period of from twenty-one to fifty-six days. The animals were kept in activity until there was evidence of physical exhaustion. Five of the eleven showed roentgen evidence of dilatation, and the heart weight-body weight ratios in all were well above the normal series. The average ratio for the group was 46.59 per cent above the average normal ratio. This we regard as conclusive evidence of cardiac dilatation and hypertrophy in these animals. It would thus appear that one of the functions at least of the pericardium is to restrain the tendency to dilatation with subsequent hypertrophy that would tend to appear with the high venous load associated with severe muscular exertion. That the restraining influence of the pericardium becomes more pronounced as dilatation of the heart reaches a considerable degree has been observed by other workers.[10]

The second series of experiments is concerned with the extent of dilatation and hypertrophy in two groups of dogs with experimental aortic regurgitation, one subjected to severe exercise, the other kept as controls in the kennels. Although this series is not as yet completed, it would appear that in the group subjected to exercise a definitely greater degree of dilatation and hypertrophy has developed than in the nonexercised group. The occurrence of severe physical exertion thus appears to increase the extent of dilatation and hypertrophy that develops subsequent to an experimental aortic lesion.

Whether or not a high venous pressure leads to cardiac muscle injury with dilatation and subsequent hypertrophy would thus seem to depend on two factors: the extent of the venous overload and the protective influence of the pericardium. With the pericardium intact, the restraining influence is sufficient to prevent injury except when the normal load is greatly exceeded as a result of valve injury, orifice constriction or massive increase of blood volume. On the other hand, with the restraining influence of the pericardium absent, damage may result from the high venous pressure associated with severe muscular exertion. With the process of dilatation and hypertrophy once initiated, subsequent exposure to high venous pressures appears to lead to greater changes than would otherwise appear.

The importance of the protection of the heart, already the seat of myocardial injury and hypertrophy, from high venous pressures would thus appear obvious, not alone from the general rule that a diseased organ is injured by overwork, but from the experimental observations previously quoted that suggest a rational explanation as to the mechanism by which this further damage occurs.

CIRCULATION IN PYREXIA *

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The cardiovascular changes in experimental pyrexia from exposure to heat resemble in many respects those seen during fever, but in other respects they differ considerably.

The pulse rate varies in experimental pyrexia according to the body temperature, in a manner similar to that in fever. In chart 1 the changes [1] in pulse rate with rise of body temperature produced by lying in a hot bath are compared with those [2] induced by sitting in a hot room and with the commonly accepted change in pulse rate in fever (increase of from eight to ten beats a minute for each degree above 98.6 F.). It will be observed that the changes are of similar order, though in both experimental conditions the pulse rate tended to be faster at any given temperature level when the temperature was rising than when it was falling, and, to some extent at any rate, irregularities depended on variations in the rate of change of temperature. These changes in pulse rate appear to be mainly dependent on physicochemical alterations, since they are not dependent on the presence of either the vagus or the splanchnic nerves.[3] Figures given for the effect of temperature on the excised dog heart[4] are shown in chart 2 for comparison with the acceleration of the pulse in the anesthetised dog.[5] While in the intact animal, as in man, reflex changes appear to cause temporary irregularities, the general change in pulse rate is similar to that in the excised heart. One must therefore assume that, in pyrexia, adjustments in the circulation are achieved without any great alteration in reflex effects on the heart rate. Adolph considers the change in the pulse rate to be more closely related to surface than to deep temperature, which would almost of necessity imply a reflex factor; but it is by no means certain that the rectal temperature affords a reliable guide to the cardiac temperature, during rapid alterations in body temperature. Reflexes, however, play at any rate a minor rôle; the pulse rates observed by Adolph when the subject was sitting were higher than those observed when the subject was lying down, and the latter data check better with those observed in hot baths and in fever. The rapid increase in pulse rate in experimental pyrexia induced by standing was emphasized by Hill and Flack.[6] When commencing circulatory failure is induced by exposure to heat, the pulse rate may show a sudden acceleration; and in this also a reflex factor is probably involved. The increase in pulse rate above the normal fever level, which may accompany infections with symptoms of toxemia, may also have a reflex cause and belong similarly to conditions near the breaking point; but no adequate method of analysis has been devised.

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[9] Eyster, J. A. E.: Meek, W. J., and Hodges, F. J.: Cardiac Changes Subsequent to Experimental Aortic Lesions, Arch. Int. Med. **39:** 536 (April) 1927.

[10] Wilson, J. A., and Meek, W. J.: The Effect of the Pericardium on Cardiac Distention as Determined by the X-Ray, Am. J. Physiol. **82:** 34 (Sept.) 1927.

* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Bazett, H. C.: Am. J. Physiol. **70:** 412 (Oct.) 1924.

[2] Adolph, E. F., and Fulton, W. B.: Am. J. Physiol. **67:** 573, 1924.

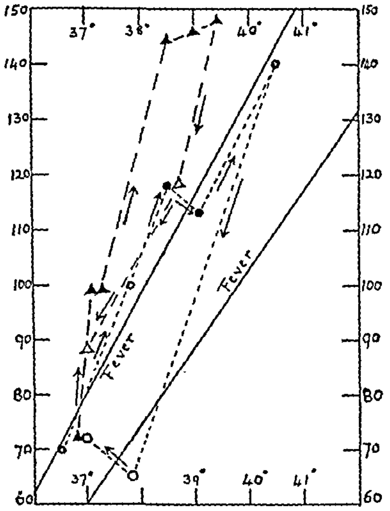

Chart 1.—Pulse rate changes observed by Adolph in a hot room and by Bazett in a hot bath, compared with pulse rate changes commonly assigned to fever. The abscissas indicate mouth temperatures, and the ordinates pulse rates in beats per minute. Fever limits are indicated by heavy lines; Adolph's data by solid triangles during heating, open triangles during cooling, and Bazett's data similarly by solid and open circles.

The circulation rate is increased in experimental pyrexia, probably also in fever. An increase of from 20 to 30 per cent has been demonstrated[7] in animals in hot baths. In one experiment a rise of rectal temperature of 5 degrees centigrade increased the pulse rate from 165 to 252 (53 per cent) and the minute volume by 30 per cent only. Grollman[8] has shown a similar increase in minute volume (30 per cent) in man on exposure to mildly warm air ("humidity maintained low to avoid discomfort"). The pulse rates reported did not exceed 85 per minute, an increase of 45 per cent, and the increase in body temperature was described as "slight." Increases in minute volume accompany experimental pyrexia but are probably smaller than the changes in pulse rate; it is uncertain how far the results may be applied to fever.

The blood pressure level is determined by the relation of heart output per minute to the average resistance to flow in the periphery, but, in the latter factor at least, the conditions in experimental pyrexia and fever are probably not comparable. In experimental exposure to heat, flow through the superficial capillaries, venules and veins appears rapid, and these vessels are much dilated; Uyeno[7] found in the cat that the local increase in circulation of a skin area on exposure to heat might amount to 600 per cent, but even so he considered that the increased circulation through the skin was insufficient to account for the whole of the increased heart output. While, on exposure to heat, there is therefore evidence of diminished peripheral resistance in the skin area, in fever, particularly during the stage when the temperature is rising, the skin appears pale, the veins are constricted, and vasoconstriction in this area is indicated by a temporary failure to increase heat loss in spite of the rise of body temperature.[9] Evidence has also been advanced by von Euler[10] that the blood of fever patients contains some substance capable of inducing constriction of skin vessels; he considers that this substance shows many of the properties of epinephrine.

The metabolism is increased in pyrexia, whether of experimental or of infectious origin, and this increased metabolism is likely to be associated also with some vascular dilatation in muscle areas. In the early stages of fever, during the rise of temperature this increase in metabolism may be considerable,[9] and consequently a considerable vasodilatation in the muscle area may be assumed. This may balance vasoconstriction in the skin and give a decrease in the average peripheral resistance. In this case artificial pyrexia and fever may both be accompanied by lowered peripheral resistance and differ only in the area in which the resistance is mainly lowered. In fever the area mainly involved may even differ according to the stage of fever.

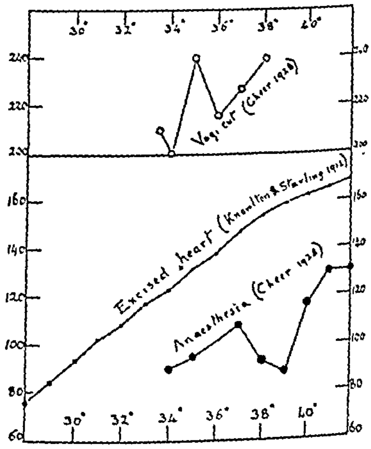

Chart 2.—Effect of temperature on excised heart of dog, compared with relationship of pulse rate to rectal temperature in anesthetized animal. The abscissas indicate temperatures in degrees centigrade and the ordinates pulse rate per minute.

On exposure to mild warmth there is usually a fall of both systolic and diastolic pressures, though there is some tendency for this fall to be less pronounced at the higher temperatures. This is well illustrated in Grollman's data and must imply lowered peripheral resistance, since the cardiac output was demonstrably increased. At somewhat higher effective temperatures, Sayers and Harrington[11] noted a fall of both systolic and diastolic pressure much greater than that reported by Grollman. At still higher temperatures, Adolph[2] noted consistently a rise in systolic and fall in diastolic pressure. With hot baths I[1] observed consistently a fall in diastolic pressure, while the systolic fell in mildly warm baths, rose with hotter baths, and might fall again, even in quite hot baths, if symptoms of circulatory failure were observed. The balance between increased circulation rate and decreased peripheral resistance is variable, and the blood pressure levels may either be increased or decreased. A raised systolic pressure appears evidence of a somewhat severe test and often precedes symptoms of distress and circulatory failure; for in experimental pyrexia with profuse sweating, if water is not given, final circulatory failure gradually ensues and is associated with evidence of diminished blood volume and inadequate venous return. The symptoms resemble those following hemorrhage, and restlessness is a prominent feature. Restlessness appears physiologically a reflex method of improving venous return, and, whenever, it is a prominent symptom, attention should be directed to this factor.

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[3] Kuno, Y.: Arch. f. d. ges. Physiol. **158**: 555, 1914. Kirsch: Ibid. **198**: 105, 1923.

[4] Knowlton and Starling: J. Physiol. **44**: 217, 1912.

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[8] Grollman, A.: Am. J. Physiol. **95**: 263 (Nov.) 1930.

[9] Barry, D. P.; Du Bois, E. F., and Cecil, R. L.: Clinical Calorimetry, Arch. Int. Med. **29**: 608 (May) 1922.

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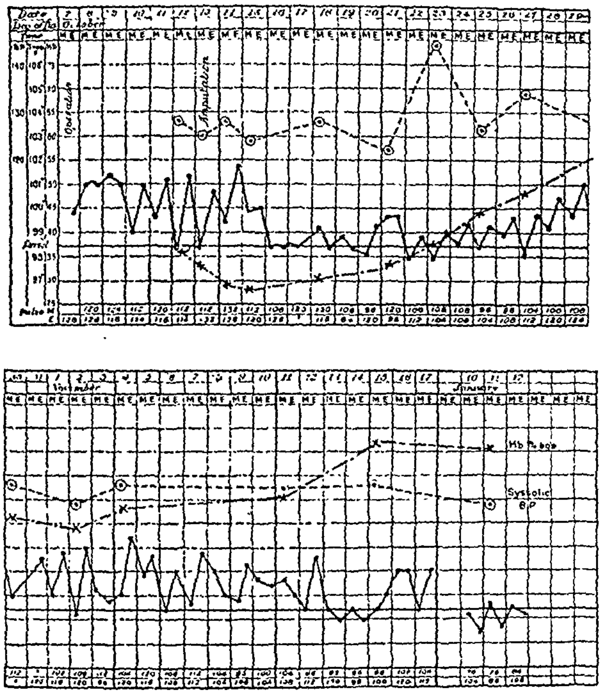

Chart 3.—Temperature, systolic blood pressure, and hemoglobin percentage in a case presenting a penetrating wound of the knee joint and amputation on the ninth day. Temperature records commence on the third day, and blood pressure records on the eighth day.

In fever a fall in blood pressure is commonly described. Newburgh and Lawrence[12] considered the fall as probably the simple result of the temperature change. In view of the different condition of the skin circulation, this generalization is unwarranted. The assumption that a low blood pressure usually accompanies fever seems to depend on a study of medical cases; in surgical cases, where conditions are perhaps somewhat simpler to visualize, the reverse is common. Thus in wounded patients on recovery from shock Robertson and Bock[13] described systolic blood pressures which often were maintained for days at from 130 to 150 mm. In many of their cases a streptococcal infection was identified. Somewhat earlier, Drummond and Taylor[14] considered that a rise in blood pressure accompanied infections with the gas gangrene bacillus and reported many systolic pressures above 130 mm. (one reaching 160 mm.) in cases that were later fatal. Hypertensive properties are also ascribed to staphylococcic and pyocyaneus toxins.[15] In view of the variety of bacteria that may be accompanied by hypertension in surgical conditions, it seems more probable that the differences lie in the position of the inflammatory change. As the result of a study of blood pressure changes for weeks or months in sixty-four surgical cases with extensive wounds (fifty-four cases with a compound fracture of the femur, a penetrating wound of the knee, or both, and often complicated by other wounds) I[16] concluded in 1918 that the local vasodilatation of inflammation is commonly reinforced by a readjustment of the circulation as a whole, adapted to force more blood through the damaged area and accompanied by a raised blood pressure and probably by an increased circulation rate. I see no reason to change this opinion. At any rate in the type of case described a rise of blood pressure is the rule while fever lasts, provided the subject's general condition is adequate to achieve it, and the association of a so-called normal pressure with an infection of this type implies the presence of some toxic or other factor that interferes with the development of the pressor change. As the clinical condition of such a subject improves, the systolic blood pressure rises from an apparent "normal" level to the real normal high pressure of inflammation, and thereafter it usually remains high as long as fever is continued. A few examples are reproduced to illustrate these points. The relationship of blood pressure changes to fever in one such case is shown in chart 3, the capacity to develop high blood pressure having been recovered eight or nine days after an amputation for a compound fracture of the femur. A more detailed analysis of the blood pressure changes is given in chart 4. (Mean pressure is arbitrarily assumed as the midpoint between systolic and diastolic pressures.) In other cases with less toxic symptoms systolic pressures as high as 160 mm. might accompany fever of 39 C. (102 F.) from the beginning.

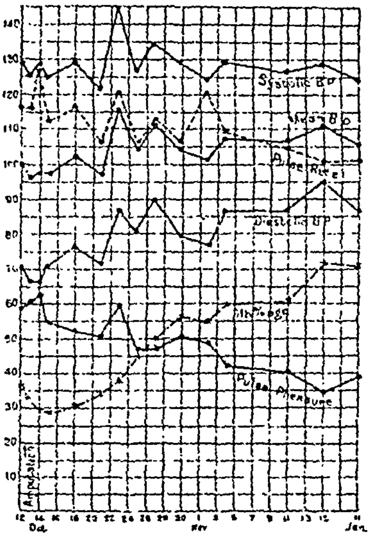

Chart 4.—More detailed analysis of blood pressures in case illustrated in figure 3. The abscissas denote the time in days.

From a study of such cases it seems certain that the absence of a pressor response to local infection may depend on toxemia interfering with either the activity of the vasomotor center or the force of the heart, even though the study of experimental pneumonia by Newburgh and Porter[17] offers some evidence that the latter factor is uncommon. An adequate analysis of the relationship of pulse pressure and pulse rate changes to mean blood pressure should allow a differentiation between these factors, and in 1919 I[18] attempted a mathematical analysis of this sort. Unfortunately this attempt was based on poor mathematics, if possible worse physics, and on measurement clinical methods of which I believe to be inadequate, and showed a neglect (unavoidable through war conditions) of previous literature. I am glad to take this opportunity of retracting any arithmetic then advanced. Sometimes, however, it is possible to distinguish the factors in circulatory failure; an instance is shown in chart 5 in which circulatory failure was cardiac and was caused by pyopericarditis and bilateral empyema in a case of septic thrombitis with a penetrating wound of the hip joint; toxemic symptoms appeared minimal. This chart may be contrasted with chart 6, which shows the changes in a patient with multiple wounds (penetrating wound of knees and compound fracture of the superior maxilla); in this case toxemia was probably a considerable factor, and the relative importance of cardiac and vasomotor failure is hard to determine.

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[12] Newburgh, L. H., and Lawrence, C. H.: Effect of Heat on Blood Pressure, Arch. Int. Med. **13**: 287 (Feb.) 1914.

[13] Robertson and Bock: Brit. M. Research Committee Spec. Rept. **25**: 213, 1918.

[14] Drummond and Taylor: Brit. M. Research Committee Spec. Rep. **25**: 199, 1918.

[15] Norris, G. W.; Bazett, H. C., and McMillan, T. M.: Blood Pressure and Its Clinical Applications, Philadelphia, Lea & Febiger **8**: 175, 1914.

[16] Bazett, H. C.: Brit. M. Research Committee Spec. Rep. **25**: 181, 1918.

For toxic factors may sometimes apparently either directly or indirectly affect the heart. For instance, one patient with a compound fracture of the femur and with apparent extreme toxemia showed considerable venous engorgement and evident rise of venous pressure (although this was not measured), and both symptoms and signs indicated improvement immediately after amputation under nitrous oxide and oxygen (with morphine) anesthesia; at the same time, systolic and diastolic pressures were both increased. Forty-eight hours later, arterial pressures had again fallen and a high venous pressure had returned; irrigation of the wound (previously kept dry and at this time very foul) with surgical solution of chlorinated soda was immediately followed by an improvement in the pulse and disappearance of the venous engorgement. The arterial pressures were not measured for two days but then were definitely higher. The accompanying venous engorgement suggests that the heart was itself affected.

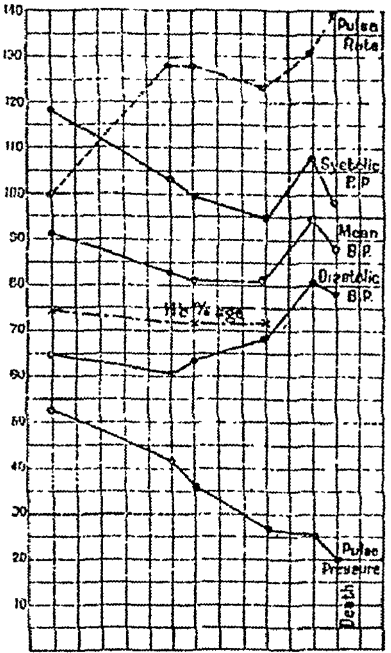

Chart 5.—Blood pressure changes observed in patient dying of cardiac failure (pyocarditis and so on).

In medical cases with general infection associated commonly with a fall in blood pressure, analysis on similar lines may be possible. Pressor reflex changes of the type described are unlikely to be associated with pulmonary infections, since the pulmonary circulation is by no means comparable in this respect with the systemic. But in abdominal infections a pressor response of the same type might be anticipated (and I have observed such a response in two patients with abdominal wounds which I have investigated somewhat inadequately), provided the area involved in the local vasodilatation was not too great. In general infections of the typhoid type, the local inflammatory dilatation might involve such a large vascular bed as to overshadow the pressor response in other areas, and the same might readily be true of many general infections. An absence of a rise of blood pressure in such cases should not therefore necessarily be ascribed to toxic interference with either heart or vasomotor center, though of course such factors cannot be excluded. Inflammatory vascular changes over a large area themselves levy a considerable tax on the circulation.

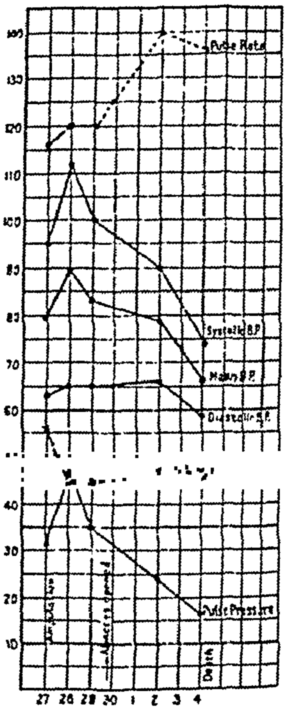

Chart 6.—Blood pressure changes observed in patient dying with pronounced toxic symptoms.

In conclusion it may be pointed out that studies of the circulation in fever both in animals and man have been inadequate, and the hope may be expressed that a more systematic study may be possible. For such studies the present methods of blood pressure measurement must be improved, and a greater capacity of analysis must be developed, since the respiratory methods of measuring circulation rate are unlikely to be adaptable to these cases. By improved technic in measuring blood pressure, by a study of the character of the pulse wave, by consideration of the complexities introduced by end and lateral pressure heads, and by careful standardization of any calculations through comparison with circulation rate measurements of the respiratory type, it may ultimately prove possible to unravel the complexities of the circulatory changes in such patients by the use of relatively simple technical methods.

University of Pennsylvania School of Medicine.

[Editorial Note.—This paper, together with the papers of Drs. Henderson and Eyster, which precede it, and those of Drs. Wiggers, Katz and Sutton, to appear next week, constitute a symposium on the heart and the circulation. The remainder of the discussion will follow the papers to be published next week.]

The Goal of Science.—The ultimate goal of pure science is the complete unification of all the laws of nature into a single principle which shall explain the phenomena both of living and of nonliving matter. The goal of applied science is to utilize the knowledge thus gained in ways that may benefit the human race.—Graves, W. P.: The Unification of Science and Its Relation to the Control of Life, *Am. J. Obst. & Gynec.* **22**:341 (Sept.) 1931.

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[17] Newburgh and Porter: J. Exper. Med. **22**: 123, 1915.
[18] Bazett, H. C.: Proc. Roy. Soc. London **90**: 415, 1919.

COMPARISON OF PREGNANCY TESTS[*]

MILO R. WHITE, M.D.
AND
ALVIN O. SEVERANCE, M.D.
DETROIT

A laboratory procedure for the diagnosis of pregnancy has been a subject of interest to obstetricians for many years. The early work in this field, which seemed most promising at first, has been shown to have little or no practical value. Since then, advances in physiology and endocrinology have added much to our knowledge of the function of the ductless glands and of their physiologic changes during pregnancy. It is on this fundamental work that the pregnancy tests of Aschheim and Zondek, of Brouha and of Friedman depend. In this study these three reactions, as well as the empiric reactions of Bercovitz and of Manoilov, have been performed, so far as possible, on each individual in a series of pregnant and nonpregnant patients. It is our purpose to ascertain their relative values as diagnostic procedures in gynecologic as well as obstetric cases.

A large amount of experimental work has been done to demonstrate the relationship between the anterior lobe of the hypophysis and the genital tract. In 1904, Launois and Mulon[1] described the hypertrophy of this gland during pregnancy. Evans[2] in his studies on the hypophysis, described the luteinization of unruptured follicles in the ovaries of immature mice which had been injected with bovine hypophyses. Smith[3] was able to hasten sexual maturity in immature rats by means of anterior lobe transplants. Smith and Engle[4] demonstrated that pituitary transplants in spayed immature rats did not cause the vagina to open, and the uterus showed only castration atrophy; whereas the vagina did open, and the development of the genital tract was stimulated if the ovaries had not been removed. These investigators, as well as Steinach and Kun[5] and others, have demonstrated that pituitary transplants stimulated the growth of the male genital tract. The stimulation was most apparent in the accessory organs, although the testes did show some increase in size. In their hypophysectomized animals there was a cessation of follicular growth in the ovaries. When these animals were treated with anterior lobe transplants, the growth of the follicles was stimulated. Aschheim and Zondek[6] concluded from their experimental work that the ovarian function in the immature animal could be stimulated only by the anterior lobe of the hypophysis. From forty to sixty hours after the implantation of the anterior lobe, they found enlarged follicles in the ovaries, and a proestrual stage in the vaginal smear. One hundred hours after the implantation, the animal was at the height of rut and the ovaries contained vascularized corpora lutea.

ASCHHEIM-ZONDEK TEST

Aschheim and Zondek injected immature white mice with the urine of a pregnant woman and thereby produced a reaction which simulated that produced by anterior lobe transplants. Since the urine of nonpregnant women failed to produce these changes in the ovaries of the test animals, these investigators have utilized the reaction as a test for pregnancy.

Their technic, which is described in the literature, will not be repeated. The reaction is considered to be positive for pregnancy if an ovary of one of the animals is found to contain a hemorrhagic follicle or a corpus luteum. If these structures cannot be demonstrated macroscopically, the ovaries are examined microscopically. The reaction is not interpreted as being positive for pregnancy if only enlarged follicles are found.

Aschheim[7] reported an error of 1.6 per cent in a series of 258 control urines on which the Aschheim-Zondek test had been done. In a series of 197 reactions with urines from pregnant women, there was an error of 2 per cent. Robertson,[8] in reviewing 2,368 cases reported by thirteen investigators, found an average error of 1.47 per cent. Mazer and Hoffman[9] reported 16 positive reactions in a series of 164 observations on nonpregnant women. Thirteen of the false positive reactions were associated with endocrine disturbance. Mack[10] has reported 500 Aschheim-Zondek reactions, of which 98 per cent were correct. In this series there was only one false positive reaction.

BROUHA TEST

Brouha and his associates[11] found that only 60 per cent of positive Aschheim-Zondek reactions could be recognized by macroscopic methods alone. In order to obviate the necessity of microscopic examination, they used immature males, in which the changes in the genital tract are of macroscopic proportions.

According to their technic, four male mice, weighing from 8 to 15 Gm. each, are injected with from 0.1 to 0.4 cc. of morning urine daily for from eight to ten days. They are killed twenty-four hours following the last injection. The reaction is positive for pregnancy if the seminal vesicles are abnormally enlarged, swollen, and distended with a whitish fluid.

Brouha reported a series of 145 cases in which this reaction had been observed. Among these women 92 were pregnant, in all of whom the reaction was positive. In thirty nonpregnant women the results were uniformly negative. In nineteen instances in which the diagnosis of pregnancy was questionable, all the reactions agreed with the subsequent clinical history.

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[*] From the Henry Ford Hospital.

[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[*] This study was made possible through the cooperation of the Department of Gynecology and Obstetrics and the Department of Laboratories of the Henry Ford Hospital. Dr. J. P. Pratt and Dr. F. H. Hartman assisted in the preparation of this paper.

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FRIEDMAN TEST

Friedman[12] has modified the Aschheim-Zondek test by injecting the urine intravenously in nongravid mature female rabbits. Four cubic centimeters of urine is injected three times daily for two days, and the ovaries are examined forty-eight hours after the first injection. The reaction is positive for pregnancy if hemorrhagic follicles or corpora lutea are present in the ovaries on macroscopic examination. If there are only clear unruptured follicles, the reaction is negative.

Friedman and Lapham reported their observations in ninety-two controlled cases, in all of which the reaction agreed with the subsequent clinical history. Reinhart and Scott[13] have reported 150 reactions, all of which checked with the clinical history, with the exception of two cases. However, these two cases showed reactions subsequently which corresponded with the clinical observations. Their technic was to inject from 5 to 12 cc. intravenously and note the reaction twenty-four hours later. In our own observations we have injected 10 cc. intravenously and examined the ovaries forty-eight hours later. Schneider[14] reported a series of 100 observations on a group of patients in which there were 25 pregnant individuals, 25 nonpregnant individuals, and 50 in whom pregnancy was suspected. With the exception of two cases, the reaction was in agreement with the subsequent findings. Repeated tests on these two cases checked with the clinical course.

PUPILLARY REACTION OF BERCOVITZ

Bercovitz[15] described his observations on the reaction of the pupil when the individual's blood serum was instilled in the conjunctival sac. There was first noticed a sudden spasm of accommodation; following this, no change in the size of the pupil was noted in a series of seventy-two normally menstruating women. However, in a series of seventy-five observations on sixty-eight pregnant women, 80 per cent showed a dilatation or contraction following the initial pupillary spasm. If this subsequent dilatation or contraction of the pupil occurred, the reaction was considered positive for pregnancy. However, the author has not advocated the use of the reaction as a means of differential diagnosis.

MANOILOV REACTION

Manoilov[16] has recently described a serum reaction for pregnancy, which, in his series of 696 observations, was correct in 94 per cent of the cases. It is suggested that the reaction may be due to an increased p_H of the blood serum during pregnancy, or that colloidal changes occurring in pregnancy produce an increase in the amount of a specific substance that may play a rôle in the reaction. The test requires 0.3 cc. of blood serum, to which are added 1 cc. of 2 per cent aqueous solution of theobromine sodiosalicylate and one drop of alcoholic solution of nile blue. If the serum is from a pregnant woman, Manoilov states that the blue color becomes yellow or reddish yellow and that the reading may be made at the end of one hour. In the absence of pregnancy, no color change is noted. No statement is made as to the time in pregnancy at which the tests were carried out. While these serums were obtained from different sources, no precautions were taken to prevent a change in the p_H of the blood.

Fretwurst and Otto,[17] in describing their experiences with Manoilov's reaction, found only one positive reaction in forty-one observations during the first trimester of pregnancy; in the second trimester, only 35 per cent were positive, whereas, in the third trimester they were positive in 61 per cent. These workers discredit Manoilov's theory that the reaction is due to an increase in the p_H of the blood serum of pregnancy. They attempted to eliminate any change in the p_H by taking the blood under paraffin but found that the color reaction did not differ from that in serum which had been exposed to the air. They also point out that alkaline theobromine sodiosalicylate solution should produce a positive reaction if used in excess. However, an excess of this reagent does not decolorize the mixture. In view of this, Fretwurst and Otto do not believe that the small variations in p_H during pregnancy can play a rôle in the reaction.

COMMENT

It has been our purpose to perform all the foregoing reactions on each specimen of urine, so far as possible, and to compare the results. The pupillary reaction of Bercovitz was observed seventy-three times; in forty-two cases the results were incorrect, or an error of 57 per cent. There were seventy-eight observations of the Manoilov test, which were incorrect in forty-five, or 57 per cent of the cases. These tests were carried out according to the technic described by the respective authors. There was a series of 191 Aschheim-Zondek reactions, of which 20, or 10 per cent, were negative for pregnancy. The Brouha reaction on 106 of these specimens was incorrect ten times, or in 9.4 per cent of the cases. The Friedman test was negative four times in a total of forty observations.

Table 1.—*Empirical Reactions for Pregnancy*

	Manoilov Reaction			Pupillary Reaction		
	Total	Positive	Negative	Total	Positive	Negative
Pregnant	65	21	44	58	19	39
Nongravid	13	1	12	15	3	12
Total	78			73		
Errors	45 (57%)			42 (57%)		

In ninety-three early normal pregnancies, the Aschheim-Zondek test was positive ninety-two times and negative once. The specimen giving the negative reaction was positive with the Brouha test and negative with the Friedman reaction. In sixty of these normal pregnancies the Brouha reactions were uniformly positive. In this series there were fourteen Friedman reactions. These were all positive, with the exception of one, which was carried on the thirty-second day after the last menstrual period.

There were eleven ectopic pregnancies which were demonstrated at operation. The Aschheim-Zondek reaction was positive five times and negative six times. The average duration of the pregnancies was approximately the same in the two groups. The Brouha reaction, which was observed ten times in this group of cases, was uniformly positive. Four Friedman reactions were positive in two instances and negative in two. One of the cases giving a negative Friedman reaction gave a negative Aschheim-Zondek and a positive Brouha reaction.

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[12] Friedman, M. H., and Lapham, M. E.: A Simple, Rapid Procedure for the Laboratory Diagnosis of Early Pregnancies, Am. J. Obst. & Gynec. **21:** 405-410, 1931.

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[14] Schneider, P. F.: A Hormone Test for the Diagnosis of Early Pregnancy: Clinical Application in One Hundred Cases, Surg. Gynec. Obst. **52:** 56-60 (Jan.) 1931.

[15] Bercovitz, Zacharias: Studies on Pupillary Reactions of Pregnant and Nonpregnant Women and Their Practical Application to Diagnosis of Pregnancy as Simple Procedure, Am. J. Obst. & Gynec. **19:** 767-778 (June) 1930; A Study of the Pupillary Reactions as a Diagnostic Aid in Pregnancy, Tr. Sect. Obst., Gynec. & Abdom. Surg., A. M. A., 1930, pp. 77-86.

[16] Manoilov, E.: Eine einfache Serumreaktion zur Schwangerschaftsbestimmung, Arch. f. Gynäk. **140:** 138-140, 1930.

[17] Fretwurst, F., and Otto, K.: Die Manoiloffsche Schwangerschaftsreaktion, Arch. f. Gynäk. **143:** 459-464, 1930.

In a series of eighteen incomplete abortions, there were ten positive and eight negative Aschheim-Zondek reactions. The Brouha test was done in only four of these eight cases, the reaction being positive in each instance. In this series there were nine Brouha tests, all of which gave positive results. There were four Friedman tests, of which one gave a negative reaction *and three, positive reactions.* The Aschheim-Zondek and the Brouha tests both gave positive reactions in the case which gave a negative Friedman reaction.

TABLE 2.—*Hormone Tests for Pregnancy*

Diagnoses	Aschheim-Zondek Total	Aschheim-Zondek Positive	Aschheim-Zondek Negative	Brouha Total	Brouha Positive	Brouha Negative	Friedman Total	Friedman Positive	Friedman Negative
Normal pregnancies	93	92	1	60	60	..	14	13	1
Ectopic pregnancies	11	5	6	10	10	..	4	2	2
Incomplete abortions	18	10	8	9	9	..	4	3	1
Nongravid controls	69	5	64	27	10	17	18	..	18
Total number of observations	191			106			40		
Number of reactions not supporting final diagnosis	20 (10%)			10 (9.4%)			4 (10%)		

In a series of sixty-nine observations on nongravid patients there were five false positive Aschheim-Zondek reactions; in four of these five cases the Brouha reaction was also positive. The uterine curettings in two of these patients showed hypertrophied endometrium. The third patient complained of menstrual irregularity. In twenty-seven Brouha reactions of this series there were ten false positive results. Four of these ten false positive reactions have previously been accounted for. Of the remaining six cases, two showed hypertrophy of the endometrium; two were menopausal; one presented pelvic inflammatory disease, and one was in the premenstrual stage. There were eighteen Friedman reactions, all of which were negative.

If one considers only the nonpregnant controls and the normal pregnancies, the Aschheim-Zondek reaction was incorrect only 6 times in a series of 162 observations, or an error of 3.7 per cent. This figure is substantially the same as that reported by Aschheim and Zondek. Among thirty-two Friedman reactions on the same group of patients there is only one error, or an error of 3.1 per cent. In these two clinical groups there were eighty-seven Brouha tests with an error of 11 per cent due to false positive reactions.

The ectopic pregnancies and incomplete abortions gave negative Aschheim-Zondek readings fourteen times in a series of twenty-nine cases. In eight of these the Friedman reaction was negative three times. However, it is to be noted that the Brouha test was uniformly positive. This might indicate that the Brouha test is more accurate than that of Aschheim and Zondek, or of Friedman, if it were not for the large number of false positive Brouha reactions among nongravid controls.

The disadvantages of the Aschheim-Zondek reaction are that immature mice are required, and the ovaries must frequently be examined microscopically. These objections are obviated with the Brouha test, in which the animal may be nearly mature, and the reaction is read macroscopically. However, the time required for the test is a distinct disadvantage.

The advantages of the Friedman reaction are that only one test animal is required, and the result may be determined after from twenty-four to forty-eight hours by macroscopic examination.

SUMMARY

1. In 191 Aschheim-Zondek reactions there were 20 instances in which the result did not check with the final diagnosis. There were five false positive reactions among sixty-nine controls which were not pregnant. There were twenty-nine observations in a group of ectopic pregnancies and incomplete abortions, fourteen of which were negative. In only one case of pregnancy was the Aschheim-Zondek reaction negative.

2. The Brouha reaction was uniformly positive in a group consisting of sixty normal pregnancies, ten ectopic pregnancies and nine incomplete abortions. However, there were ten false positive reactions in a *series of twenty-seven nongravid women.* Four of these showed hypertrophy of the endometrium; three complained of menstrual irregularity, and one had tuberculous salpingitis.

3. The Friedman test was observed in forty cases. In the groups of normal pregnancies and nongravid controls there were thirty-two observations, all of which were correct with one exception. In this case, which proved to be a normal pregnancy, the reaction was carried out on the thirty-second day after the last menstrual period. There were four ectopic pregnancies, which gave two positive and two negative reactions. There were four incomplete abortions, three of which gave positive reactions.

4. The tests of Aschheim and Zondek and of Brouha gave false positive reactions which probably depended on some endocrine disturbance. In such cases a consideration of the history usually prevents confusion.

5. In the groups of ectopic pregnancies and incomplete abortions, the Aschheim-Zondek reaction was of value as a diagnostic procedure in 51 per cent of the cases, whereas the Friedman reaction was of diagnostic value in 62 per cent of the cases. The Brouha reaction was uniformly correct: however, this reaction does not lend itself as a practical diagnostic aid in cases of this type because of the time required for carrying out the test.

6. In cases of suspected normal pregnancy the Brouha reaction possesses distinct advantages over the Aschheim-Zondek reaction in that the results are *determined macroscopically, and nearly mature test* animals may be used.

7. The advantages of the Friedman reaction are that only one test animal is required and that the reading may be made macroscopically at the end of from twenty-four to forty-eight hours. In view of our own experience and that of others who have reported a total of 300 observations, we believe that the Friedman test is a dependable biologic reaction and a suitable laboratory procedure.

8. The tests of Aschheim and Zondek, of Brouha and of Friedman depend on a quantitative change in the amount of active principle that is excreted in the urine during pregnancy. This active principle is presumably anterior lobe hormone. A substance specific to pregnancy has not been demonstrated.

9. In our experience, the serum test of Manoilov and the pupillary reaction of Bercovitz have been of little value as diagnostic aids.

ABSTRACT OF DISCUSSION

Dr. Maurice H. Friedman, Philadelphia: I shall concern myself chiefly with those tests in which the rabbit is used. The rabbits one gets from different sections of the country may vary markedly in their response to any treatment. I may quote, for example, my own experience here in contrast to that of investigators at Johns Hopkins. I am obliged to buy rabbits indiscriminately on the market. Those rabbits will not give uniform results, whether they are mature or immature, with one single intravenous injection of urine, regardless of the quantity used. At Johns Hopkins where they have a pedigreed stock, raised in their laboratory of hygiene, their results have been uniformly positive with one injection. I think it is wise when buying rabbits indiscriminately on the market to take into consideration these possible differences. In the last few days while I have been giving a demonstration here in the booth at the Scientific Exhibit, time after time men have come to me and said: "We have used immature rabbits and we have used one injection and it doesn't work." Some of them have been so discouraged they have been giving up the test. Those who are not fortunately situated in getting good rabbits may well listen to a word of caution. I think in an effort to simplify this test one may simplify it into oblivion by making the procedure altogether too simple. I would urge that unless one knows absolutely the kind of stock dealt with, one should use more than one injection. In the paper of Drs. White and Severance false positives were not encountered. The errors were made on the side of false negatives. I feel quite confident that if Drs. White and Severance would use more than one injection the results might be better. I may indicate some further quantitative studies on the subject. If one titrates the amount of this effective substance in the urine, he will find that in a seven months pregnancy as little as 1/16 cc. of urine injected into a suitable rabbit will give a positive response. If, however, one uses an adult animal, but an animal that is not in heat, that quantity will not do it. One may inject many times that quantity and it will not do it. In order to get an effective response of the urine of pregnancy with a minimal quantity, one must use a rabbit that is known to be in heat. One cannot tell from external inspection whether or not the rabbit is in heat. By comparing that reaction with the reaction in immature rats, by actual titration, I have found that the rabbit is about thirty to forty times more sensitive, weight for weight, than the immature rat. So there is an advantage in using the rabbit on that score. But the advantage is not so great as to guarantee something approaching 100 per cent accuracy with one injection if one uses indiscriminately rabbits bought on the market. If during the period of isolation the rabbit happens to drop a litter of young while under observation, that rabbit is immediately fit for use; in fact, that rabbit is much more sensitive than any other rabbit one can get.

Dr. Barton C. Hirst, Philadelphia: I have not done experimental or laboratory work. My only excuse for appearing in this discussion is that during my professional lifetime I have watched the success or failure of all these methods of precision in the diagnosis of pregnancy, the Abderhalden test, the placenta inoculation, the glycosuria test, and finally this test of the pituitary hormone in the urine; they have all been utilized in my practical work. One should not forget the glycosuria method. I am still employing it as a practical method suitable for the ordinary clinician. But reading of the work of Drs. Friedman and Lapham, I got Dr. Kolmer of the Graduate Hospital to provide the facilities for using the hormone test, and so far I have found it the most satisfactory of any of them. But I still find myself occasionally reverting to the glycosuria test, which is so easy and so simple, requiring so little special preparation and special knowledge. As far as I can see at present, clinicians will depend in the future mainly on this Friedman test as the most accurate of any that have been presented to their notice, but occasionally they will resort for reasons of its simplicity and ease of application to the glycosuria test, which for some years past has proved fairly reliable.

Dr. Fred O. Priest, Chicago: The use of rabbits as advised by Friedman and by Schneider instead of mice as used in the Aschheim-Zondek test cuts the time required to about one fifth. Rabbits ovulate generally only after copulation; ovulation can occur, however, if one female climbs on another or can even be produced by friction of the genitalia. Therefore, it has been advised to use only immature rabbits which because of their age could not be pregnant. Exercising these precautions I have, however, encountered pregnancy in supposedly virgin rabbits and corpora lutea among those which had supposedly been kept isolated. I recommend the following modification of the Friedman test: I take any available rabbit over 12 to 14 weeks of age that has been in isolation for at least one day, preferably longer. This isolation period removes the possibility of ovulation occurring from stimulation before the test is begun, because ovulation will occur from any stimulus within eight to twelve hours. I frequently use rabbits that I have on hand and that have been used for previous laboratory work. First, I do a laparotomy on the animal, and this is the main point of my modification, thereby definitely eliminating all confusing factors. If the animal is not pregnant I sketch each ovary so as to record accurately the location of follicles, corpora lutea, and so on. Then 10 cc. of suspect urine is injected into a marginal vein of the ear. At the end of from eighteen to twenty-four hours the rabbit is reoperated on through the same incision and the test read. In this way I can interpret actual changes in the ovaries which have occurred as the result of the injection. The reading of the test should be done under the same conditions as at the time of the injection and first inspection, that is, while the rabbit is alive. A relatively easy reading may become a questionable one if the animal is killed and circulation in the ovary is interfered with before the reading. This technic also cheapens the cost of the test by doing away with premium prices for certified aged rabbits, and eliminates keeping them isolated for long periods of time. The rabbits can be used for subsequent injections. I injected one rabbit under sodium amytal anesthesia and made almost hourly observations of the genitalia for a period of twenty-four hours. Hyperemia of the ovaries, tubes and uterus began in three hours. A slight elevation of follicles could be noted at the same time. This progressed until at the end of ten hours the picture of a positive test was present. Marked distention and coiling of the uterus appeared at six to seven hours and persisted until the animal was killed at the end of twenty-four hours.

Dr. Jacob Hoffman, Philadelphia: I have had occasion to use the Aschheim-Zondek test in several hundred cases. Recently I have made use of the modified Aschheim-Zondek test of Friedman, when time was an important factor. The female sex hormone test developed by Mazer and Hoffman has been used in each case as a check-up on the anterior pituitary tests. From our experience, we find that in normal pregnancy all the tests are reliable. I believe that each man should work with a test with which he is more familiar. We use the female sex hormone test because it has yielded fewer false positives than has the anterior pituitary test. This is especially true in cases of endocrine unbalance and during the menopause. I use this test in Dr. Anspach's service at the Jefferson Hospital; in the first hundred cases only one false positive was encountered. Much depends on the proper technic employed and on the correct interpretation of the vaginal smear of the mouse. The advantages of the female sex hormone test are that it is more practical in the hands of the average gynecologist and is less expensive than the anterior pituitary tests. Castration takes only a few minutes and is a simple procedure. A stock of 100 castrated mice can be used for many months in the average hospital, because the animals can be used again and again, provided a rest period of three weeks is allowed them. A technician may be dispensed with for there are no histologic sections to be made. All that is necessary after the injection of the suspected urine is the taking of a vaginal spread. When this shows a preponderance of non-nucleated epithelial cells and the absence of leukocytes, it is indicative of a positive reaction. The Aschheim-Zondek test and modification of it are less reliable and give a greater percentage of false positives, especially in the endocrinopathies and menopausal cases, than does the female sex hormone test.

Dr. Fred L. Adair, Chicago: In our laboratory, Dr. Davis has been carrying on some work with the Aschheim-Zondek test. We worked first with mice and found a large mortality which interfered with the completion of our tests. So we switched first to female rats and later applied the test to male rats. Now we use the test indiscriminately on both male and female rats and, so far as we can tell, the test seems to be equally satisfactory in the two sexes. There is, however, a little difference in the technic. The female rats have to be immature. We think the best age is from 22 to 32 days. Their weights vary considerably in this period. We usually inject a smaller amount of urine in these cases than we do in the males, using a dose of about 1 cc. twice a day for two days, and then we allow them to rest for about seventy-two hours and do the autopsy and examine the genitalia. In the male the age doesn't seem to be such an important factor. We select male rats weighing between 40 and 60 Gm. and inject the urine in larger amounts, about 2 cc. twice daily or in forty-eight hours, sometimes giving them an extra dose of urine in the meantime, and perform an autopsy on them seventy-two hours after the completion of the last injection. In some of the males we have noted a descent of the testes as the result of this injection. As a modification of the technic we have also used intraperitoneal injections of the urine in these test animals and found it quite satisfactory. I have a few slides I wish to show. The first one is from the literature showing the apparent occurrence of the ovarian and pituitary hormone at different periods of pregnancy. The pituitary apparently appears earlier, that is, if it is pituitary, and this disappears earlier subsequent to pregnancy. This slide shows the female genitalia of the rats, the control on the left and the others on the right, showing a definite hypertrophy of the genitalia. The next one also shows the color changes in the control and experimental animals. This one shows the changes in the male rat. There is some congestion of the testes, but the principal changes are in the secondary sex glands of the male. The changes are the hyperemia, the increased size, and increased amount of secretion.

Dr. Arthur First, Philadelphia: In the past year we have performed 250 pregnancy tests in problem cases at the Jefferson Medical College Hospital under the supervision of Dr. P. Brooke Bland. Briefly there are two biologic tests for pregnancy, one depending on the presence of anterior pituitary sex hormone in the urine, to which the names of Aschheim-Zondek and Friedman are attached, and the other on the presence of female sex hormone in the urine, to which the names of Mazer and Hoffman of this city are attached. After a study of 250 cases we have come to the conclusion that the female sex hormone test is somewhat the more reliable of the two tests because of the fact that in problem cases of endocrine dysfunctioning, menopause, amenorrhea and functional sterility there is often a compensatory pituitary hypertrophy which may manifest itself by an increase of anterior pituitary hormone in the blood, and consequently in the urine, and so may render a false positive (7 per cent in our series). There is no condition which we have as yet encountered which will produce an hypertrophy of the ovaries sufficient to yield an increased amount of female sex hormone other than pregnancy. As a result we have not obtained false positives in a series of 129 nonpregnant patients when the female sex hormone test of Mazer and Hoffman was employed. We therefore recommend that both the female sex hormone and the anterior pituitary sex hormone tests be run simultaneously on each urine specimen in order to give the most accurate results.

Dr. P. F. Schneider, Evanston, Ill.: We have been fortunate in having the views of Dr. Friedman in regard to the effect of various strains of rabbits on the accuracy of the test and the variations that may occur in different breeds of rabbits at similar ages. In the present series of cases we have used practically without exception the same breed of rabbits from the same source, and our results indicate that it is a considerable factor in the reduction of error. The particular circumstances under which the test is done, whether it is in a laboratory or where facilities of that kind are not available, govern the particular variations of the technic that are used. One thing that this series has helped to emphasize has been the particular conditions in which the test is of value. The test is particularly useful in the differential diagnosis of pregnancy and the primary and secondary amenorrheas. It is particularly valuable in the amenorrhea following pregnancy when the menses have not been reestablished. In the diagnosis of ectopic pregnancy, the test should be of rather marked assistance when the diagnosis can be made prior to interruption of the pregnancy. One of the most valuable aids of the test is as a prognostic measure in the presence of hydatid mole and chorio-epithelioma. The experiences cited demonstrate that it can usually be determined whether complete removal of the hydatid mole or chorio-epithelioma has been accomplished. Other instances in which the test may be of value are prior to pelvic operation to eliminate the possibility of a pregnancy; cases in which uterine instrumentation is used, such as tubal inflation; injection of iodized oil, and before treatment with radium or x-rays. The warnings given by Dr. Friedman deserve particular emphasis, namely, that it is essential to use conservatism in the application of the test and also to assure oneself that the particular method being used coincides with the facilities available to make the test reach the degree of accuracy that is necessary.

Dr. Milo R. White, Detroit: In regard to the Brouha test, many more observations are needed before this reaction can be evaluated. It is hoped that other investigators will see fit to do so. Dr. Friedman deserves no small amount of credit for his contribution to this work.

SUBPHRENIC ABSCESS *

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Subphrenic abscess is an important surgical problem because it occurs as a complication of the most common surgical diseases: appendicitis, cholecystitis and peptic ulcer. It is a difficult problem because the diagnosis is frequently puzzling, the treatment hazardous and the mortality high.

The condition was first described by Barlow in 1845, but it was not until 1879 that von Volkmann recorded the first operation for its cure. The most comprehensive papers on the subject are those of Barnard,[1] who described accurately the anatomy of the subphrenic region and reported 76 cases; Piquand,[2] who collected 890 cases, Lockwood,[3] who reported 113 cases from the Mayo Clinic, and Fifield and Love,[4] who reported 78 cases. Statistics based on such numbers show with fair accuracy the anatomic location of the abscess, the origin of the infection and its clinical course.

ANATOMY

A study of subphrenic abscess is largely anatomic since the pus is localized in well defined areas. A knowledge of the anatomy involved is necessary if drainage is to be performed by the most direct route and with the least danger of spreading the infection. A complete description of the subphrenic spaces was made by Barnard,[1] which with minor changes is here summarized.

The forward convexity of the lumbar spine together with the posterior convexity of the lower thoracic and sacral regions would by gravity direct the flow of the fluid into the pelvis and the subphrenic regions with the patient in the horizontal position. The lumbar convexity is therefore the summit of the "water shed" with an upper and a lower slope. Direction is further guided by the "gutters" formed by the mesentery of the small intestine and the ascending and descending colon. The rôle of the lymphatics in the upward drainage of infection, and of the possibly lower abdominal pressure in the upper abdomen, probably plays a minor part in the localization of the abscesses in the subphrenic areas.

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* From the Department of Surgery, Emory University School of Medicine.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, *Philadelphia, June 10, 1931.*

[1] Barnard, H. L.: Surgical Aspects of Subphrenic Abscess, Brit. M. J. **1**: 371-377, 429-436, 1908.

[2] Piquand, G.: Les abcès sous-phreniques, Rev. de chir. **39**: 156, 373, 812, 962, 1909.

[3] Lockwood, A. L.: Subdiaphragmatic Abscess, Surg. Gynec. & Obst. **33**: 502 (Nov.) 1921.

[4] Fifield, L. R., and Love, R. J. McN.: Subphrenic Abscess, Brit. J. Surg. **13**: 683 (April) 1926.

The subdiaphragmatic area may be divided into five regions, as follows:

1. Suprahepatic, right intraperitoneal.
2. Subhepatic, right intraperitoneal.
3. Suprahepatic, left intraperitoneal.
4. Subhepatic, left intraperitoneal.
5. Suprahepatic, right extraperitoneal.

1. The right intraperitoneal suprahepatic space lies directly between the liver and the diaphragm. An abscess here is limited medially by the falciform ligament, posteriorly by the right lateral ligament, and laterally and in front by adhesions between the diaphragm and the liver. This location is the most common location of subphrenic abscess, since abscess of the liver, either pyogenic or amebic, is likely to rupture here. Infection along the right lateral gutter from appendicitis or pelvic infection usually localizes here (fig. 1). Infection may pass from the right subhepatic fossa to this region around the lateral margin of the liver, or, vice versa, the subhepatic fossa may be a secondary seat of abscess from this region. Either space may by gravity infect the right lateral gutter or pelvis. Failure of symptoms to subside after drainage of an abscess in the suprahepatic space, the subhepatic space, the loin or the pelvis should lead to a suspicion of an abscess in one of the other areas, since infection frequently passes from one to the other.

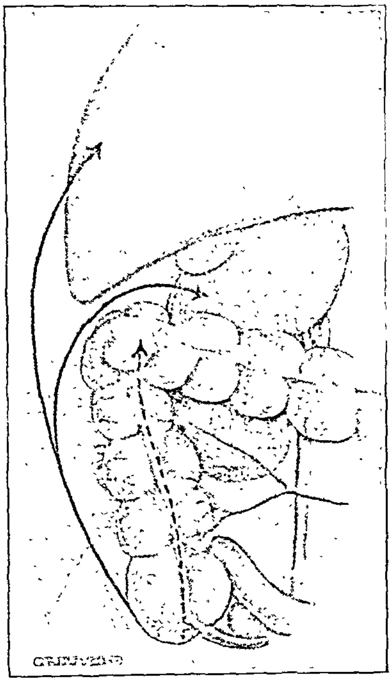

Fig. 1.—The path of infection from the appendix to the right suprahepatic intraperitoneal region, the subhepatic region and the right extraperitoneal suprahepatic region. (From Fifield and Love.)

2. The right intraperitoneal subhepatic space, often described as Rutherford Morrison's kidney pouch, is pyramidal, with its base formed by the right overhanging lobe of the liver and the diaphragm with its apex pointing to the foramen of Winslow and the duodenum (fig. 1). Anteriorly and above is the liver and gallbladder, and below the transverse colon. The posterior boundary is formed by the peritoneum overlying the right kidney and the diaphragm. Abscess here usually results from rupture of a duodenal ulcer, empyema of the gallbladder, or infections following operations on the gallbladder, stomach and duodenum. It communicates with the right lateral gutter, and infections from the appendix reach it by this route. As previously stated, it communicates with the right suprahepatic space around the right margin of the liver and may be a source of secondary abscess from this area or may secondarily infect it. An abscess here is limited behind and above by the lower layer of the coronary ligament, anteriorly by adhesions between the omentum, transverse colon, abdominal wall and liver, to the left by gastric adhesions, and from the lesser sac by adhesions about the foramen of Winslow.

3. The left suprahepatic intraperitoneal or perisplenic space is bounded above by the diaphragm, below by the left lobe of the liver, on the right by the falciform ligament and to the left by the spleen. An abscess here is limited behind by the left lateral ligament and in front by adhesions between the omentum and the abdominal wall. Infections from the stomach (perforating ulcer, cancer, or following resection), spleen, or colon are most likely to localize in this region. Pelvic infection reaches it by way of the left lateral gutter. Appendiceal infection beginning on the medial side of the cecum may rarely pass upward between the descending colon and the vertebral column to the splenic flexure and thence to this space.

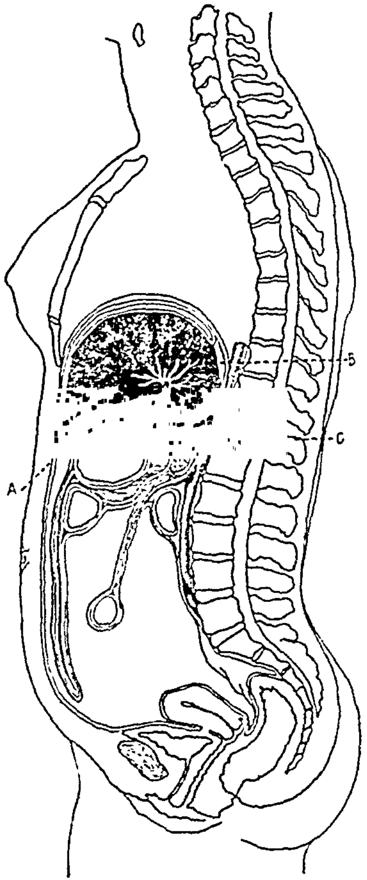

Fig. 2.—Reflexions of the peritoneum showing the relations of the subhepatic space and the lesser sac to the stomach and duodenum: *A*, subhepatic space; *B*, bare area; *C*, lesser sac. (From Deaver's Surgical Anatomy, Philadelphia, P. Blakiston's Son & Co.)

4. The left subhepatic intraperitoneal space is the lesser peritoneal sac (fig. 2). It is limited below by the transverse colon and in front by the lesser omentum and the stomach. Behind it lies the pancreas and left kidney. Above, it extends between the liver and the diaphragm as high as the "bare area" of the liver. Infections here are usually caused by perforations of the posterior wall of the stomach. An abscess here is limited to the sac since the adhesions usually close the foramen of Winslow.

5. The right suprahepatic extraperitoneal space is that region lying above and behind the "bare area" of the liver (fig. 3). An abscess in this area is bounded above and behind by the diaphragm and in front by the right lobe of the liver. Its extent is limited in front by the anterior layer of the coronary ligament and below by the posterior layer. To the right and left it is limited by the meeting of these two layers to form the right and left lateral ligaments. Infection reaches this space posteriorly through the extraperitoneal cellular tissue, with which it is continuous below, and anteriorly between layers of the falciform ligament. Hence infection from a retrocecal or retroperitoneal appendix, an

abscess of the kidney, or the posterior (retroperitoneal) portion of the duodenum reaches this area by spreading upward and separating the peritoneum from the retroperitoneal cellular tissue. By its connection with the falciform ligament it may point in the epigastrium, or, vice versa, infection may pass from the abdominal wall through the falciform ligament to the "bare area" of the liver (fig. 4). Abscess of the liver frequently ruptures into this area. As an abscess here increases in size the diaphragm is raised and the liver pushed down since the ligaments of the liver stretch, and adhesions are not present between the liver and the diaphragm as in the right suprahepatic intraperitoneal abscess.

SOURCE OF INFECTION

In 890 observations, Piquand[2] found 251 cases of gastric origin, 191 from the appendix, 131 hepatic or biliary, 56 intestinal, 40 splenic, 27 pancreatic, 32 originating in the thorax, 26 renal, and 17 genital. This follows generally the observations of Barnard, Lockwood, and Fifield and Love, who name gastric ulcer, hepatic and biliary disease, and appendicitis as the principal etiologic factors.

PROGNOSIS

Without operation, practically all patients die. The only favorable outcome without operation is perforation into a bronchus. With operation, the mortality is approximately 50 per cent.

SYMPTOMS, SIGNS AND DIAGNOSIS

Since subphrenic abscess is a complication rather than a primary disease, the history of the original infection is of the greatest importance in diagnosis. As a rule, the primary disease is well known and an operation for its cure has been undertaken. This is usually a perforated peptic ulcer, empyema of the gallbladder, or suppurative appendicitis. Usually following operation there is a variable period of improvement, followed by evidence of toxemia and infection; such as loss of appetite, irregular temperature, leukocytosis and profuse sweating. Occasionally pain in the lower part of the chest or in the epigastrium gives an indication of the location of the trouble.

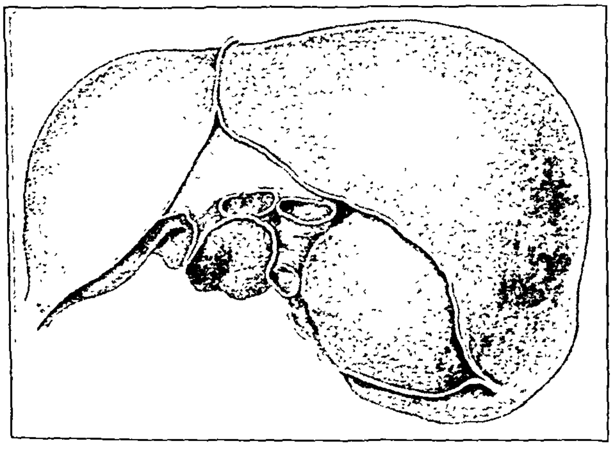

Fig. 3.—The liver from above and behind. The "bare area," seat of right extraperioneal suprahepatic abscess, is shown. Pus is limited above and below by the layers of the coronary ligament but may pass forward in the falciform ligament. (After Spalteholtz.)

Physical signs vary with the size of the abscess and its anatomic location. In abscess of the subhepatic area or lesser sac, bulging may be seen in the epigastrium or below the costal margin, and on palpation a tender mass may be felt. Occasionally the liver is pushed down by a right extraperitoneal abscess. In subhepatic infections the ribs may bulge and movements of the chest are limited, and pressure on the lower ribs usually elicits pain. Examination of the chest shows evidence of consolidation from lung pressure of an elevated diaphragm, from pneumonia, from pleurisy with effusion or from empyema due to rupture of the abscess through the diaphragm. There is dulness on percussion with absence or diminution of the breath sounds. If gas is present in the cavity there may be an area of shifting tympany above the liver dulness—an infrequent sign. The greatest help in diagnosis is roentgen examination. The diaphragm is elevated, fixed and frequently deformed, and, if gas is present, it is easily seen. If subphrenic abscess is suspected, pneumoperitoneum may be of great value in determining the presence of adhesions between the diaphragm and the liver.

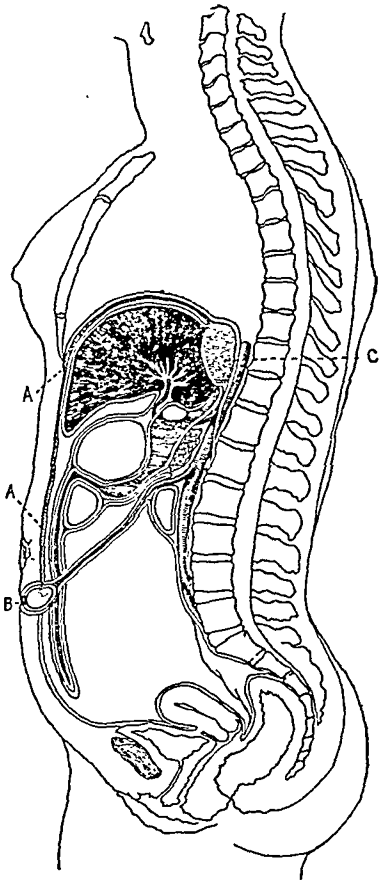

Fig. 4.—A diagrammatic sketch showing the path of infection from an ileostomy; the sinus tract ran beneath the right rectus muscle to the falciform ligament and through it to the right extraperitoneal suprahepatic space: *A*, *A*, sinus tract; *B*, ileostomy; *C*, subphrenic abscess.

TREATMENT

With mortality so high, even with surgical intervention, it is evident that treatment should be directed largely toward prevention. This can best be accomplished by early operation in cases of perforated gastric ulcer, biliary disease and appendicitis. Careful exclusion of the subhepatic pouch in operations on the stomach and gallbladder, and dependent drainage of this area when infection is present there, will go far in the prevention of abscess in this area. Drainage of the right lateral gutter in suppurative appendicitis will often prevent the upward spread of infection by this route. While Fowler's position theoretically causes drainage toward the pelvis, this procedure is probably overemphasized as a preventive measure, since it does not prevent lymphatic spread.

If the abscess develops in the subhepatic region and points anteriorly in the abdomen, its operative approach and drainage can be easily accomplished. As a rule, adhesions will have walled off the infection from the general peritoneal cavity. Incision should be made over the most prominent part of the tumor, and if adhesions are not present the peritoneum should be packed against the abscess wall and drainage deferred for two or three days.

When the abscess is situated in the suprahepatic region and protected by the overhanging ribs, the operative approach is more difficult. The problem then is to drain the pus by the most direct route without spreading the infection into the pleural space or into the abdominal cavity. I believe this can best be accomplished by a transpleural operation performed in two stages.[5] Under procaine or nitrous oxide and oxygen anesthesia about 2 inches (5 cm.) of the eighth and ninth ribs are excised in the posterior axillary line. The intercostal muscles with the nerves and vessels are removed so as to give a clear view of the underlying pleura. The costophrenic sinus may have already been obliterated by adhesions due to infection, but even then it is safer to sew the parietal pleura to the diaphragm by eight or ten interrupted sutures of catgut placed in a circle. The sutures are left long and are tied over the gauze packing in order to cause firmer adhesions and safer obliteration of the costophrenic angle. Forty-eight hours later the gauze is removed and the sutures, previously placed, are used for traction. An exploring needle can then be passed with safety through the diaphragm into the subphrenic space. If pus is encountered the needle is followed into the abscess and the cavity drained (fig. 5). If pus is not found with the needle there is no danger in opening the diaphragm and exploring the top and posterior surfaces of the liver with the fingers. When pus is encountered, it should be drained without further exploration or else the protective barrier of the abscessed wall may be ruptured and the infection spread.

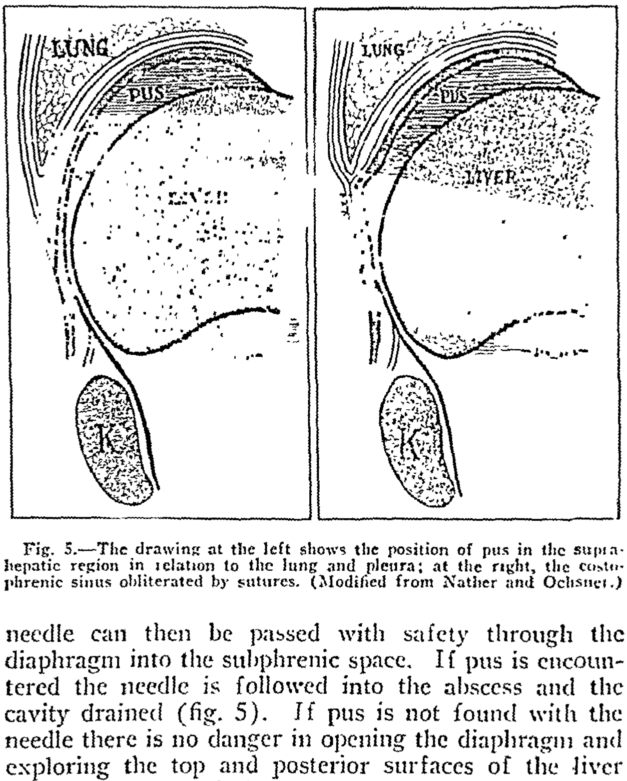

Fig. 5.—The drawing at the left shows the position of pus in the suprahepatic region in relation to the lung and pleura; at the right, the costophrenic sinus obliterated by sutures. (Modified from Nather and Ochsner.)

CONCLUSIONS

1. Subphrenic abscess occurs as a complication of the most common surgical conditions: peptic ulcer, cholecystitis and appendicitis.

2. Infection spreads along anatomic lines to well mapped subphrenic areas. A knowledge of these areas is necessary for diagnosis and proper drainage.

3. The transpleural operation, done in two stages, is advocated as the safest and most direct approach for abscess above the liver.

ABSTRACT OF DISCUSSION

Dr. George P. Muller, Philadelphia: I have never seen a subphrenic abscess consequent to suppuration of the gallbladder, and I believe that such an occurrence must indicate in most cases either a secondary collection to a liver abscess or leakage of infected bile which works round the liver to its upper surface. I have had one such instance. Many of these cases that have been reported of subphrenic abscess following suppurative cholecystitis are instances of subhepatic abscess. I do not think that the collection under the liver should be properly classed as a subphrenic abscess. Most of the cases will be found to be secondary collections in the course of acute perforated appendicitis with abscess formation. I treat the high abscess by adequate exposure and drainage through the loin in addition to several tubes anteriorly. In the last ten years I can find the record of only one instance of subphrenic abscess as a complication of about 1,800 operations for acute appendicitis. I have had one subphrenic abscess on the left side after splenectomy, one associated with an encapsulated empyema on the right side, and two extraperitoneal collections above the right kidney. The diagnosis is not difficult if two things are kept in mind: the probability of the collection when the patient continues septic after the surgical treatment of the condition which is liable to this complication, and a careful roentgenographic examination. The latter cannot be emphasized too strongly. One should remember that a fixed high diaphragm causes a hypoventilation of the base of the lung, and unless the roentgenologist is aware of this a diagnosis of basal pneumonia may be made. The method of approach, as Dr. Elkin has stated, depends on the location of the collection. The most frequent site is the right suprahepatic area, close to the diaphragm. Here the transpleural approach is ideal if the surgeon has time to effect the adhesions necessary to prevent infection of the pleural cavity. In collections somewhat lower, and when high rigidity and tenderness and possibly a vague mass are present, the abdominal incision is necessary. In one case I had to resect the eighth rib close to the sternum to get access to the collection. In the extraperitoneal abscesses, well out and above the kidney, the subpleural approach through the loin is best. On the left side the anterior approach is often necessary. I have noted that many writers caution against the abdominal approach for fear of infecting the peritoneal cavity, but if packing is properly placed and an efficient aspirator used there is little danger of inducing a spreading peritonitis.

Dr. Henry W. Cave, New York: The roentgen examination, of course, is of great importance. However, it is often confusing, for sometimes a fibrosis of the lung will simulate closely the shadow of a subphrenic abscess. I think I have made more mistakes in the diagnosis of subphrenic abscess by confusing it with empyema. In both of these conditions the cupola of the diaphragm is fixed. In empyema it is flattened, and in the subphrenic abscess it is elevated. I believe that most of these patients, regardless of whether there is a ruptured peptic ulcer or a ruptured appendix, with peritonitis, should be placed in the Fowler position immediately on regaining consciousness. The ideal treatment, of course, is to empty the abscess without subsequent peritonitis or pulmonary complications, and, if possible, to open below the reflexion of the pleura or extraperitoneal cavity. The two-stage transpleural procedure is the safest, particularly if the abscess lies directly above the surface of the liver. From 1910 to 1930 I had twenty-five cases with subphrenic abscess. The site of the abscess in twenty-two was on the right, two on the left, and one bilateral. Of acute perforative peptic ulcers, I had five cases that produced a subphrenic abscess. The total number of acute perforative peptic ulcers from 1910 to 1930 was 154. The proportion of subphrenic abscesses developing following acute perforative ulcers was 3.24 per cent. Subphrenic abscess developed in twelve of my patients with acute suppurative appendicitis with drainage. The total number of cases of acute suppurative appendicitis with drainage from 1910 to 1930 was 1,598, and those were all cases in which there was a localized peritonitis or a diffuse peritonitis. The proportion of subphrenic abscesses developing following acute suppurative appendicitis with drainage was 0.75 per cent. Two subphrenic abscesses followed operations on extrahepatic bile ducts; one followed a gunshot wound of the right lower part of the thorax; one followed operation for pancreatic cysts; in four in which no previous operation had been done, there was a history suggesting acute appendicitis or ruptured peptic ulcer. My method of treatment was a one-stage transpleural operation in thirteen, a two-stage transpleural operation in six and a subcostal operation in six. My mortality was pretty high, and I think it was because back in 1910 to 1930 almost all the interventions were one-stage transpleural procedures. Ten of the twenty-five patients died, a mortality of 40 per cent. In seven of the ten patients who died, necropsy was performed.

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[5] Elkin, D. C.: The Transpleural Operation for Subphrenic Abscess, Ann. Surg. **92**: 477 (Sept.) 1930.

Dr. Moses Behrend, Philadelphia: I am particularly interested in the incidence of subphrenic abscess in those cases of cholecystectomy in which the abscesses were drained and those in which they were not drained. I believe that the incidence of subphrenic abscesses is just as great in cases of cholecystectomy that are drained as in those not drained. There is also the incidence of subhepatic abscess and the occurrence of subphrenic abscess in the same individual. These must be differentiated, because if one operates on the subhepatic abscess and the latter communicates with the subphrenic abscess, the patient will not be cured. I had one example of this only recently in a woman operated on for cholelithiasis, in whom the gallbladder was removed and a subhepatic abscess developed. Coincidentally there must have been a subphrenic abscess also. The roentgenogram showed that there was a marked shadow in the region of the liver. I opened the subhepatic abscess, and a large amount of foul-smelling pus exuded. I thought that I had cured the patient, but post mortem there was found a sinuous tract leading up to the subphrenic space, and this also contained the same character of fluid. The patient died as the result of toxemia. I can also add that in suppurative appendicitis the occurrence of subphrenic abscess is indeed a rare condition. I see more cases of subphrenic and subhepatic abscesses as the result of gallbladder surgery.

Dr. H. A. Royster, Raleigh, N. C.: I believe the diagnosis of subdiphragmatic abscess is difficult; but unless one keeps the condition in mind and suspects it, one is going to overlook many. I have had patients die on a diagnosis of hypostatic basal pneumonia or empyema who undoubtedly had subdiaphragmatic abscess. I agree with Dr. Muller, who stated that he never had seen a case of this sort following a cholecystitis or an operation on the gallbladder, and I have seen only one following a ruptured peptic ulcer. Practically all of these cases occur from neglected appendicitis. One must remember the trough which runs on each side of the colon, inviting the transference of infection along this area, no matter in what position the patient may be placed. The roentgenogram has at times given me more confusion than it has assistance. These cases occur late after everything has gone well for a while. Then one sees the little rise in temperature, with practically no pain and little tenderness. The important thing is to determine it early by suspicion. The transpleural route is undoubtedly the safe and the ideal approach. I have never been able to diagnose these abscesses by puncture, but in any case of suspicion the part should be explored.

Dr. Donald MacRae, Jr., Council Bluffs, Iowa: One point that has not been brought out in the diagnosis of subphrenic abscess is the pain in the shoulder. Practically all the patients I have seen have had pain in the shoulder. These cases come on quite late after operation. In my experience it is five or six days, a week or ten days, and the patient is making an uneventful recovery and everything is satisfactory, and then he begins with his low-grade fever; he is not feeling very well, he has a little pain in his chest, a chill, perhaps pains in the right or left shoulder. They come on insidiously, gradually. Here is where one should perform roentgen examination immediately. I do not believe that there is any excuse for the aspirator in a search for pus in this location unless one knows exactly what one is doing, which one never does. I don't believe any one knows where the other end of that needle is, and I think that a great deal of damage may be done. I absolutely favor a two-stage operation. In fact, in one case that I had recently following a ruptured duodenal ulcer, on the right side I opened the pleura deliberately and had the diaphragm exposed and waited five days before opening. I think the day is coming when one is going to have less fear of opening the pleura with the proper technic. Then having a correct connection with the diaphragm is not taking the chances or having the uncertainty of contaminating either the pleura or the peritoneum. I have practically discontinued drainage of the gallbladder, because I take the gallbladder out, so I don't have any gallbladder to drain, but I still put a small tube down to the cystic duct, and I have never seen a subdiaphragmatic abscess in any case of cholecystectomy. The only cases I have seen have followed operations for appendicitis and ruptured ulcers of the stomach. In the way of prophylaxis, in one of my cases in which operation was performed by a friend of mine, the appendix was tied off with plain number 0 catgut without turning in of the stump. I am satisfied that in this particular case something gave way, the result of insecure ligature at the stump of the appendix, which accounted for the subphrenic abscess.

HYPERTHYROIDISM ASSOCIATED WITH THE PARKINSONIAN SYNDROME *

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AND
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The association of exophthalmic goiter with paralysis agitans is comparatively rare. Most of the cases reported in the literature show that the association is an accidental one. In the majority of instances the hyperthyroidism preceded the onset of the parkinsonian syndrome. In recent years, attention has been called to the presence of signs and symptoms referable to the vegetative nervous system in acute and in chronic encephalitis, which have a predilection for the basal ganglion-midbrain regions. But even before the involvement of the hypothalamic vegetative centers was recognized as the cause of metabolic and other disturbances, the sympathetic system was believed to be affected in exophthalmic goiter and to bear some relation to it. More recently, the suprarenals, the medulla of which is of the chromaffin sympathetic system, have been shown to stand in definite causal relation to hyperthyroidism.

From time to time, suggestions [1] have been made that physiologic or pathologic disturbances in the vegetative centers of the interbrain may have something to do with the production of many syndromes previously regarded as independent disease entities. The question, too, has been raised whether, in a syndrome such as hepatolenticular degeneration, the disease of the liver causes the changes in the brain or, conversely, the involvement of the striatum leads to secondary disturbances in the liver. In encephalitis it has long been known that what may be regarded as dysthyroid symptoms are frequently a part of the clinical picture, even though there was no true exophthalmic goiter. The speculation is also justified as to whether the tremor of hyperthyroidism is not in effect the result of secondary changes in the striatum. In view of all this, the question now arises whether exophthalmic goiter may not in some

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* From the Neurological Service of the Montefiore Hospital.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Kylin, Eskil: Die Hypertoniekrankheiten, Berlin, Julius Springer, 1926, pp. 95-101. Bascourret, M., and Decourt, Jacques: Les poussées évolutives de la maladie osseuse de Paget, Rev. neurol. 1:606 (April) 1929. Kuré, K.: Pathogenie der Dystrophia musculorum progressiva, Klin. Wchnschr. 6:691 (April 9) 1927. Kraus, W. M., and Perkins, O. C.: A Syndrome of the Cerebral Origins of the Visceral Nervous System: The Question of the Somatic and Visceral Atrophy and Review of Reported Cases of Unilateral Atrophy, Arch. Neurol. & Psychiat. 18:249 (Aug.) 1927.

way be the result of some altered physiologic state or pathologic change of the hypothalamic vegetative centers. The proximity of these structures to the regions affected in paralysis agitans and the occurrence of hyperthyroidism with parkinsonism in two cases in which the one syndrome preceded the other may possibly furnish clinical confirmation of theoretical views. In any event the following two cases, aside from their speculative interest, are worthy of record because of their clinical rarity:

REPORT OF CASES

Case 1.—M. L., aged 45, formerly a painter, was admitted to the Montefiore Hospital in August, 1929. His past and family history were irrelevant except for the fact that in February, 1920, he was in a hospital for ten days for what was regarded as influenza, and that in June, 1927, he had a sudden attack of vertigo lasting fifteen minutes. The present illness dates back to June, 1928, when he suddenly fell unconscious. When he regained consciousness six hours later in a hospital, he found that his right arm and leg were paralyzed, that he could not speak and that he had to be fed. He regained his speech within four days, the power of his limbs gradually returned, and within a number of weeks he was able to walk. Immediately on regaining consciousness he noticed a tremor of the right hand and to a less extent of the right leg. The tremor in the latter ceased very soon, and the former improved gradually. Tremors in both regions returned, however, becoming quite marked three months before the patient's admission to the hospital. The left upper limb also began to show tremor. There was no fracture of the skull.

In February, 1929, it was first noticed that the patient's eyes were becoming prominent. Following the attack of unconsciousness the bowels became constipated and the libido diminished. About one year before admission to the hospital, following some hypodermic medication, he had polydipsia and polyuria for a few weeks. He also complained of transient hot flushes. A neurologic examination in July, 1928, one month following the fall, showed poor convergence on the left side, evidence of a right hemiparesis including a mild central facial paresis, right hemihypalgesia of the thalamic type, masked facies, parkinsonian tremor on the right and impaired associated movements, more marked on the right. Examination at the Montefiore Hospital in August, 1929, showed bilateral exophthalmos, vasomotor instability with tendency to hyperhidrosis, pulse of 120, normal blood pressure and negative Wassermann reactions of the blood and spinal fluid. Urinalysis gave negative results. Chemical analysis showed the blood to be normal. Roentgenograms of the skull and chest were negative. The sugar tolerance curve was normal, and there was a basal metabolic rate of plus 40. Neurologically, the patient showed masked facies, loss of associated movements, especially on the right, a parkinsonian tremor on the right and a finer one on the left, some right-sided weakness, active but equal deep reflexes, a right Babinski sign, present abdominal reflexes, and mild hypesthesia for all forms of sensation on the right side. The right pupil was larger than the left; both reacted promptly to light and in accommodation; the left eye converged poorly, and there was a right supranuclear facial paralysis. The tongue was tremulous and deviated slightly to the right, and the fundi were normal. The patient's mental status was normal except for mild emotional instability.

The patient was treated medically for seven months. He received compound solution of iodine (Lugol's solution), which temporarily improved the tremor and reduced the basal metabolic rate. Roentgen treatment over the thyroid brought no results. It was agreed that the patient had a parkinsonian syndrome with residual and gradually vanishing right pyramidal tract signs but that the hyperthyroidism was for the moment the more important condition, aggravating the paralysis agitans tremor, and that surgical intervention was indicated. The question of influenza versus encephalitis in 1920 was debated and the possibility of encephalitic parkinsonism was entertained. At the same time, the possibility of exophthalmic goiter following the involvement of the basal ganglion hypothalamic region of the brain was also considered. From the history of the apoplectic attack, a vascular accident had to be considered, even though there was nothing in the cardiorenal vascular system to account for it.

Subtotal thyroidectomy was performed in March, 1930. The goiter was colloidal and slightly cystic. The basal metabolic rate fell to minus 18, then rose to minus 9. The tremors were greatly reduced in intensity, the fine toxic tremor on the left as well as the parkinsonian movement on the right. While the general condition gradually improved, the patient became depressed as a reaction to his continued disability. He was discharged in May.

Reexamination, October 22, showed a gain of 30 pounds (13.6 Kg.) and a mild myxedematous appearance, with a basal rate of minus 10. The pulse was 90 and the blood pressure 142 systolic and 108 diastolic. There was a typical pill-rolling tremor of the right hand, much less pronounced than previously, but no abnormal movements were noted in the right lower limb. There was some bilateral cogwheel rigidity, loss of associated movements, and absence of pyramidal tract signs except for diminished abdominal reflexes on the right. The exophthalmos persisted unchanged. The pupils were somewhat miotic and unequal and did not react at all on convergence. The pupillary responses to light were sluggish. The patient complained of marked epiphora. The marked reactive depression was still evident.

Case 2.—A. M.,[2] an Italian woman, aged 56, a housewife, was admitted to the hospital, Nov. 9, 1930. The chief complaints were weakness, loss of weight, pains in the lower extremities, dysphonia and dysphagia. The date of onset could not be accurately determined but could be traced back at least four years to 1926. The illness began with insomnia and irritability, followed by moderate pains in the left arm. Soon thereafter the arms became weak and stiff and the fingers contracted. The right arm became similarly involved, then the left leg and finally the right. Gradually the patient found it difficult to get about. More recently the dysphonia and dysphagia set in. There was no history of any acute infection. The past and the family histories were irrelevant. The patient had six children, of whom three are living. The menopause occurred in 1922.

The general medical examination showed an enlarged firm thyroid, the right lobe more prominent than the left. The pulse rate was 120 and the basal metabolic rate plus 68. The heart and lungs were normal, but the teeth and gums were badly infected. Moderate exophthalmos, flushed face and Dalrymple, Möbius and von Graefe signs were all present. Neurologically, the patient showed an immobile facies, loss of associated movements, generalized rigidity, more particularly of the limbs, hands in typical parkinsonian flexion-contraction attitude, and fine tremor of all limbs and some tremor of the tongue and head. All the deep and superficial reflexes were present and equal; there was no Babinski sign; the cerebral nerves and the fundi were normal.

Thyroidectomy was performed ten days after admission. The tremor was markedly lessened and deglutition improved; the pulse came down to 86 and the metabolic rate to plus 15. The other parkinsonian features, aside from the tremor, remained as before.

In this case, too, the question of encephalitis came up because of the onset of the paralysis agitans syndrome relatively early in life, the possibility being considered in spite of the fact that no history of any acute infection was obtained. It was certain, however, that the exophthalmic goiter followed a long time after the advent of the paralysis agitans.

REVIEW OF THE LITERATURE

In 1883, Möbius[3] reported a case in a woman, aged 50, in whom, following the menopause at 44, exophthalmic goiter developed and, five years later, Parkinson's disease. He considered both disorders as manifestations of an underlying neurotic state.

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[2] This patient was seen at the Sydenham Hospital, in consultation with Drs. Louis Friedman and Samuel Malisoff, through whose courtesy the case report is here included.

[3] Möbius, P. J.: Combination von Morbus Basedow und Paralysis Agitans, in Memorabilien, Heilbronn **28**: 147, 1883.

Gordon[4] reported a case in a woman, aged 39, who had a goiter for eight years, together with palpitation, tremor and exophthalmos and, seven years later, typical paralysis agitans.

Goldstein and Cobilivici[5] observed the comparatively recent onset of parkinsonism in a woman, aged 45, who for five years had exophthalmic goiter. They also cited a previous case that they had seen.

Tantar[6] reported the presence of paralysis agitans in a woman, aged 42, who had typical goiter with hyperthyroidism. He referred to three other cases and remarked on the presence of basedowoid phenomena in paralysis agitans.

Cacciapuoti[7] relates the case of a man, aged 45, who began to show symptoms of exophthalmic goiter at 39, and in whom, five years later, paralysis agitans developed, following psychic trauma. Cacciapuoti expressed the opinion that the hyperthyroidism and the accompanying hypersuprarenalemia induced vascular changes in the brain.

In 1921, Collier[8] reported a case of exophthalmic goiter with paralysis agitans. This was in a woman, aged 28, who had a goiter for eight years and later a parkinsonian syndrome.

Guillain and Marquézy[9] described a hemiparkinsonian syndrome in a woman, aged 49, who had had typical hyperthyroidism for years and a goiter since the age of 18. The patient was operated on, and the hyperthyroidism disappeared, but the paralysis agitans persisted.

Klein[10] reported the onset of parkinsonism and bulbar symptoms six months after the appearance of exophthalmic goiter. He thought that the cerebral phenomena were due to the thyrotoxicosis, since they regressed following the operation.

Riese,[11] without giving detailed case reports, summarizes his impressions and states that phenomena of exophthalmic goiter occur in disease of the central vegetative nuclei. He also adds that he saw a true case of exophthalmic goiter in a postencephalitic hypokinetic state.

Lupulescu[12] described a case of chronic encephalitis with parkinsonism, schizophrenic mental state and exophthalmos.

Lafora[13] cites a case of chronic encephalitis with parkinsonism and exophthalmic goiter. He thinks that the basedowian syndrome is of central nervous system origin.

Finally, Bassoe[14] described a case in a woman, aged 52, in whom paralysis agitans and exophthalmic goiter developed, following trauma to the head. He believes that if it can be said that the injury brought on the paralysis agitans, then it may be that changes in the vegetative brain centers secondary to trauma brought on the hyperthyroid syndrome. He reports also a case in a woman, aged 28, in whom parkinsonism developed with obesity, probably on the basis of encephalitis, followed later by rapid pulse, high basal metabolic rate and loss of 50 pounds (23 Kg.).

Naccarati[15] studied forty-seven cases of chronic encephalitis, of which twenty-five, or 53 per cent, showed increased metabolic rate, which he ascribed to changes in the vegetative nervous centers. In this connection one might mention the experimental work of Grafe and Grünthal,[16] who injected alcohol and silver nitrate into the hypothalamic region of dogs. Eleven of their fifty experiments were successful. In seven of these the posterior part of the hypothalamus was injured and in all there was a consistent significant lowering of the basal metabolic rate.

Velhagen[17] and Suker[18] commented on the close similarity of the ocular signs occasionally encountered in chronic encephalitis to the classic eye changes of the Graves syndrome. Velhagen concludes that a toxic process in the one case (Basedow) and an inflammatory one in the other affect the same parts of the brain and produce similar clinical features.

Without entering into a discussion of the pathogenesis of exophthalmic goiter, it may be pointed out that the neurogenic theory, more particularly the sympathetic origin, is old. In an inaugural dissertation, "De exophthalmo ac struma cum cordis affectione," published in 1855, Koben[19] first suggested that the symptoms of exophthalmic goiter were due to pressure of the thyroid on the sympathetic. It was not till after Claude Bernard's famous experiments on the sympathetic, in 1862, that this theory was at all developed. Aran first applied this newer knoweldge and explained the disease as due to an irritation of the sympathetic.

Trousseau[20] met certain difficulties by advancing the view that the disease is a neurosis of the sympathetic.

Geigel,[21] in 1866, was the first one to place the lesion in the central nervous system, namely, in the medulla and pons, while Filehne,[22] in 1879, attributed the disease to a lesion in the medulla impairing the vagus. Sattler and Fereol also placed the lesion in the medulla.

Gowers[23] stated that "it is probable that the cause of the derangement is to be sought beyond the sympathetic in the central nervous system."

The influence of psychic trauma acting through the cortex on the central sympathetic has been stressed by a great many writers. Bram[24] rates the incidence of psychic trauma as an etiologic factor in 3,343 cases as high as 85 per cent, while Hyman and Kessel[25] affirm the instability of the autonomic system and report that 80 per cent of their patients recovered with rest and psychotherapy.

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[4] Gordon, A.: A Note on the Rôle of the Thyroid Gland in Exophthalmic Goiter Associated with Paralysis Agitans, New York M. J. and *Philadelphia M. J.* **80:** 1253, 1904.

[5] Goldstein and Cobilivici, A.: Un cas de paralysie agitante chez une ancienne Basedowienne, Rev. neurol. **18:** 680, 1910.

[6] Tantar, L.: Paralysis Agitans with Basedow's Disease (in Russian), abstr. Ztschr. f. d. ges. Neurol. u. Psychiat. **6:** 1253, 1913.

[7] Cacciapuoti, G. B.: Su di una rara associazione morbosa, morbo del Parkinson in uno antico Basedowiano, Ann. di neurol. **30:** 81, 1913.

[8] Collier, James: Case of Graves Disease (?), Paralysis Agitans, Brain **44:** 78, 1921.

[9] Guillain, G., and Marquézy, M. R.: Association d'un goitre basedowifie avec un hemisyndrome parkinsonien, Bull. et mém. Soc. méd. d. hôp. de Paris **47:** 1547 (Nov. 16) 1923.

[10] Klien, H.: Ueber striopallidare und bulbäre Symptome bei Basedow (Encephalopathia thyreotoxica?), Monatschr. f. Psychiat. u. Neurol. **65:** 138 (June) 1927.

[11] Riese, W.: Basedow und Stammganglien, Klin. Wchnschr. **7:** 2479 (Dec. 23) 1928.

[12] Lupulescu, I. I.: Graves-Basedow's Disease and Postencephalitic Parkinsonism (Roumanian), Rev. san. mil. **28:** 370 (Sept.) 1929.

[13] Lafora, G.: Existe un sindrome basedowiane de origen neurogeno central? Con motivo de un caso de parkinsmismo y basedowismo postencefalitico, abstr. Rev. neurol. **36:** 789, 1929.

[14] Bassoe, Peter: Endocrinology and Neurology, Endocrinology **14:** 145 (May-June) 1930.

[15] Naccarati, Sante: Vegetative Disturbances in Postencephalitic Syndromes: Relation to Mesencephalic and Diencephalic Lesions, J. Nerv. & Ment. Dis. **63:** 219 (March) 1926.

[16] Grafe, E., and Grunthal, E.: Ueber isolierte Beeinflussung des Gesamtstoffwechsels vom Zwischenhirn aus, Klin. Wchnschr. **8:** 1013 (May 28) 1929.

[17] Velhagen, K., Jr.: Basedow-ähnliches Augensyndrom bei Enzephalitis, Klin. Monatsbl. f. Augenh. **84:** 199 (Feb.) 1930.

[18] Suker, G. F.: The Similar Eye Signs and Symptoms in Exophthalmic Goiter and Encephalitis Lethargica, J. Iowa M. Soc. **20:** 539 (Dec.) 1930.

[19] Koben, cited by Brüning, F., and Stahl, O.: Die Chirurgie des vegetativen Nervensystem, Berlin, Julius Springer, 1924.

[20] Trousseau, cited by Buschan, Georg: Die Basedow'sche Krankheit, Bibliothek Neurologischer Werke des in- und Auslandes, Leipzig, Franz Deutike **4:** 62, 1894.

[21] Geigel: Die Basedow'sche Krankheit, Würzburger med. Ztschr. **7:** 70-88, 1866.

[22] Filehne, cited by Fitzgerald, W. H.: The Theory of a Central Lesion in Exophthalmic Goiter, Dublin J. M. Sc. **75:** 201 (March 1) 1883.

[23] Gowers, W. R.: Diseases of the Nervous System **2:** 886, 1900.

[24] Bram, I.: Psychic Trauma in the Pathogenesis of Exophthalmic Goiter, Endocrinology **11:** 106 (March-April) 1927.

COMMENT

In the absence of pathologic studies, it is hazardous to venture an opinion as to the significance of clinical signs and symptoms or to attempt any anatomicophysiologic correlation. Therefore the two cases herein reported can serve at best as a question mark. There is no doubt that a pathologic process in the hypothalamic midbrain region, which contains the vegetative brain centers, can give rise to disturbances in metabolism or to various signs and symptoms commonly regarded as sympathetic in nature and to others which hitherto have been attributed to disturbances of the glands of internal secretion. It is only necessary to recall that diabetes insipidus and disturbances in fat metabolism (obesity), which were previously regarded as pituitary syndromes, are now definitely known to be the result of lesions in the tuber cinereum and its neighboring structures. In this connection one may also mention the growing suspicion that the cause of essential hypertension is to be sought in the central vegetative structures.[1] There is also sufficient clinical and experimental evidence to show that involvement of those regions can bring about dysthyroidal manifestations. And theoretically, at least, it must be assumed that psychic trauma, which is so common a precipitating cause of exophthalmic goiter, sets up impulses which in some way affect the brain vegetative centers. But considering all this, the question still remains unanswered whether actual exophthalmic goiter can be caused by involvement of those centers.

The association of paralysis agitans with hyperthyroidism throws some light on the problem but certainly does not solve it. The first question is whether in all such cases it is not merely an accidental association. The rarity of the cases would seem to point to that, and particularly in those instances in which the hyperthyroidism preceded by months or years the onset of parkinsonism. In our own cases and in a few others the paralysis agitans antedated the hyperthyroidism and may possibly stand in some causal relation. Case 1 is of particular interest in that there was some evidence that the patient had encephalitis which passed off as influenza, and also that he had a vascular insult which affected not only the corticospinal pathways but also the adjoining basal ganglions and possibly the hypothalamic region.

Of clinical interest in both our cases was the difficulty in dissociating the hyperthyroid from the parkinsonian tremor. The former is much finer and more rapid, but it overlaid the coarser and slower oscillations of basal ganglion origin. The improvement following thyroidectomy subtracted, as it were, the overtone of tremor and improved the underlying basal ganglion syndrome to some extent. But it may well be that the thyroidal tremor is in reality of basal ganglion origin and caused by toxic changes in those structures. It is interesting, too, that the surgeons hesitated to operate, and it was only after urging by the neurologist and assurance that the paralysis agitans in itself was no contraindication that operation was performed.

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ABSTRACT OF DISCUSSION

Dr. Samuel Brock, New York: Of course, the cause of hyperthyroidism is not known. It probably does not lie in the thyroid. The authors propounded a concept of neural causation suggesting that the ultimate pathologic changes occur in the sympathetic centers situated in the floor of the third ventricle. The syndrome of autonomic imbalance as described by Hyman and Kessel may lead to hyperthyroidism by a similar pathophysiology. On the other hand, it should not be forgotten that hyperthyroidism may be caused by various disturbances of the endocrine system. In some recent experiments in which the cortex of the suprarenals was destroyed, the syndrome of hyperthyroidism followed, and some of us have seen hyperthyroidism in certain hypopituitary disorders. Drs. W. M. Kraus, David Sloane and I again called attention a few years ago to the combination of nervous symptoms particularly of the basal ganglion type with the syndrome of hypothyroidism and called the disorder thyroneural dystrophy. It is quite possible that high central sympathetic nuclear disease may cause certain cases of hyperthyroidism.

Dr. Walter M. Kraus, New York: The paper of Drs. Wechsler and Savitsky emphasizes the association of visceral and somatic disorders of the nervous system. There are a great many of these combined syndromes. I know, for example, intimately of a case of association of Frölich's syndrome with diplegia and I am sure that Dr. Brock's discussion now and what Dr. Wechsler has said has emphasized sufficiently the frequent association of these two rather different types of disorder, one visceral, the other somatic. I will show three lantern slides to illustrate the anatomy of the region and the difference in the site of origin of the hyperthyroidism and the parkinsonism. These slides show the distinctness and yet the proximity of the hypothalamus and ventral thalamus on the one hand and the globus pallidus on the other. Therefore, it may be assumed, as the authors assume, that their cases illustrate a coincidence of lesions with an identity of cause. A lesion of a single nucleus of the central nervous system never produces two such different groups of symptoms.

Dr. George W. Hall, Chicago: I had the opportunity of reporting a case four or five years ago, in the *Journal of Neurology and Psychopathology*. The patient first had an acute epidemic encephalitis, showing early in the disease behavioristic disturbances, and following this had diabetes insipidus, during which period he passed 31 liters of urine in twenty-four hours, and for which he was treated. The treatment extended over a period of several weeks. He then developed hypopituitarism, during which period he gained 65 pounds (29.5 Kg.). Finally he went into a stage of hyperthyroidism, losing weight rapidly and developing a high basal rate. He was then placed in the hands of a surgeon, who after a short period of preparatory treatment did a thyroidectomy, from which the patient did not recover. I wish to emphasize, in referring to this case, that the patient ran through these different stages of disturbed metabolism. In my opinion, the association of endocrine upsets in connection with epidemic encephalitis is more than coincidental in character. I have observed modified disturbances similar to those in the case which I have just mentioned, which inclines me to believe that there is a definite relation between cause and effect; in other words, that the pathologic changes which are produced in the central nervous system following an attack of epidemic encephalitis are probably a basic factor in the production of hyperthyroidism.

Nurses for Sick Children.—My own private reaction to the psychologic aspect of the nurse's training is that of more value than courses in psychology is practical common sense. Every pediatrician of experience who will confess it will tell you that an untutored nursery maid is frequently more efficient, more sympathetic and more helpful than the most highly educated trained nurse, because of her normal mental adjustments and of her natural aptitude as opposed to an artificial one. Pediatricians reporting to the committee on nursing state that there is an oversupply of poorly prepared, and an undersupply of well prepared, nurses for the care of sick children.—Abt, I. A.: The American Academy of Pediatrics: Its Aim and Its Scope, *Am. J. Dis. Child.* **42**:881 (Oct., pt. 1) 1931.

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[25] Hyman, H. T., and Kessel, Leo: Exophthalmic Goiter (Graves' Syndrome) and Involuntary Nervous System, J. A. M. A. 85: 1017 (Oct. 3) 1925.

BRONCHOSCOPY AS AN AID IN THE DIAGNOSIS OF OBSCURE PULMONARY DISORDERS *

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Not so long ago the exploits of the bronchoscopist were heralded in the newspapers chiefly in connection with the dramatic removal of foreign bodies from the air passages. And so persistent has been his reputation along these lines that the public and probably not a few members of the medical profession have remained in ignorance as to the scope of his work and of the relatively rapid developments that have taken place and have brought the art of bronchoscopy where it stands today.

For today, and more especially since the special clinics have been established, it has been proved that the aforementioned "headliners" form only a small proportion of the patients who seek help from the bronchoscopist. In other words, the present trend of the bronchoscopic art is to bring additional help to the internist in the investigation of the larynx, trachea and bronchial tree, and to assist him in diagnosing by means of bronchoscopy and pneumography many of the obscure abnormalities with which he is confronted and in which other physical signs and symptoms have proved to be inadequate. Moreover, the surgeon can often obtain much helpful information from endoscopic examinations. In lung abscess cases, the method of treatment is often dependent on the result of bronchoscopy. If there is abnormal drainage into the bronchi which can be successfully aspirated by suction, and if appropriate treatment can be instituted along bronchoscopic lines, a surgical operation is usually not necessary. On the other hand, if there is a large walled-off cavity with no communication into the bronchi, then surgical intervention is called for. In such cases cooperation between bronchoscopist and surgeon will insure the best results.

In many of the larger cities, outstanding bronchoscopic clinics have been developed which offer the best opportunities for the study of such doubtful cases. Unfortunately there are many patients in various parts of the country who should have the advantages of bronchoscopic examinations but for various reasons can never be sent to distant and highly specialized clinics, and this is just where the treatment in our sanatoriums has been inadequate. Of course, it has been impracticable to send these sick patients on long trips for bronchoscopy, and unless a special clinic is connected with such hospitals these important examinations are never made.

I shall point out in a few words the great opportunities which exist for bronchoscopic investigations in a field which has been greatly neglected.

For several years I have been connected with three sanatoriums in Maryland for the treatment of pulmonary tuberculosis and during this time have become impressed with the vast amount of material available for study. At the State Sanatorium alone, over 1,200 patients are admitted annually, and of this number quite a few show interesting bronchoscopic findings. Over a year ago a bronchoscopic clinic was established at this sanatorium, and the work has been of such practical value that it seems worth while to mention a few of the cases in which a diagnosis was made certain when all other methods of investigation had failed.

It should, however, be stated emphatically that the indiscriminate use of bronchoscopy in frank tuberculous cases is not advocated; as a rule, instrumentation of any kind is liable to do much harm. In chronic cases, however, if there is a question of some unrecognized or complicating condition, the decision may rest largely on the bronchoscopic examination.

In some cases of profuse expectoration from large cavities, suction is of value in removing sputum from the trachea and from the posterior laryngeal wall. The removal may lessen the irritation and cough and help to prevent laryngeal complications. At times, also, endoscopy is necessary in the treatment of subglottic as well as of laryngeal infiltrations and ulcerations where the cautery cannot be satisfactory applied by indirect procedures.

Many patients are sent to the sanatorium with a history of repeated attacks of hemoptysis. In most of these cases tuberculosis is naturally suspected, but on bronchoscopic examination in some of them a local cause can be found for the bleeding and all symptoms can be relieved by endoscopic treatment. Bronchiectasis can frequently be detected, the diagnosis being definitely determined by injecting iodized oil through the bronchoscope. Pneumography is also helpful in outlining lung abscesses, atelectasis, new growths and bronchial stenosis.

A few interesting cases are presented to show some of the advantages of bronchoscopy when employed in conjunction with other methods of diagnosis in certain chest conditions. Only the more important points relating to bronchoscopy will be reported here.

Case 1.—Miss W., aged 27, a nurse, had been forced to give up her work on account of frequent attacks of coughing up blood. She was admitted to a general hospital for examination, and a very careful study was made of her chest, but no cause for the bleeding could be made out. Finally, she was referred to Dr. Victor Cullen at the Maryland State Sanatorium for consultation in reference to the possibility of an obscure tuberculous lesion. Dr. Cullen could find no evidence of tuberculosis. No tubercle bacilli were ever found in the sputum, but numerous fungi could be made out, and it was felt that a mycotic infection was the cause of her trouble. Considerable blood-stained purulent sputum was brought up at irregular intervals. The patient gave a very definite description of feeling blood trickling down in the region of the bifurcation of the right bronchus; this sensation preceded each attack of coughing.

After all other methods of examination had failed to warrant an exact diagnosis, a resort to bronchoscopy was made. Our object was to find out if a small lung abscess was present, or if a foreign body might be the cause, or if the bleeding was due to a chronic bronchitis or bronchiectasis, ulcer, polyp or some other obscure source of irritation. Bronchoscopic examination revealed a small bleeding area on the mucosa of the right bronchus about 2 cm. below the bifurcation. This spot was cauterized, and the bleeding disappeared entirely for about three weeks. At the end of this time the patient had a recurrence and was referred to Dr. Chevalier Jackson for consultation. Dr. Jackson confirmed my findings and kept her under observation for some time. She had intermittent attacks of bleeding over a period of several weeks, but they have now entirely subsided and she is rapidly recovering in Florida.

Bronchoscopy seems to have been particularly valuable in this case, and certainly the patient was spared the necessity of a long sojourn in a tuberculosis hospital, with its associated stigma.

Case 2.—L., aged 55, a farmer, had a severe bronchial asthma which developed after the harvesting of his wheat. Over a period of two months his condition had become rapidly worse

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* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

and his breathing greatly embarrassed; at times, indeed, so great was his distress that he had been given morphine, more or less constantly, for relief. Associated with his increasing dyspnea was gradual difficulty in swallowing. He finally came to the sanatorium and Dr. Cullen suspected a new growth in the trachea or esophagus.

Bronchoscopic examination revealed a papillomatous mass in the trachea about 2 cm. above the bifurcation on the left side, almost closing the lumen. This accounted for the dyspnea.

The growth was removed with forceps and the base fulgurated by endothermy. Following this the dyspnea and asthmatic symptoms were entirely relieved and the patient has not had any recurrence over a period of several months. A report of the microscopic examination of the specimen stated that the tissue was of a chronic inflammatory nature and that no cancer cells were found.

However, a paralysis of the left vocal cord has since developed and there is evidence of pressure on the left posterior part of the esophagus in the upper third portion. It is now my feeling that there is a mediastinal growth, doubtless from the primary lesion in the trachea. In all probability the growth will eventually be proved to be malignant in character.

Pressure on the esophagus is so intense that the canal becomes obstructed at times, if too much heavy food is taken, and hence the difficulty in swallowing. For this an occasional esophagoscopy has proved to be very helpful. Since starting treatment the patient has gained 40 pounds (18 Kg.) and at present is doing very nicely.

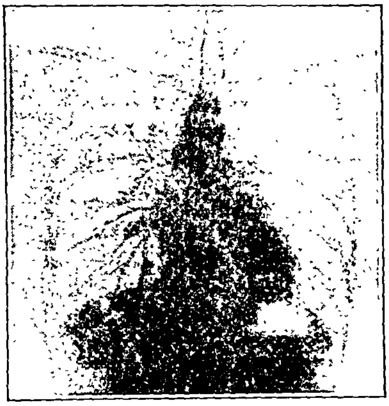
Fig. 1.—Bleeding ulcer, right bronchus.

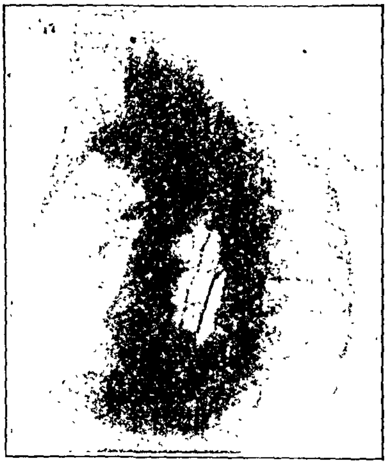
Fig. 2.—Mediastinal new growth.

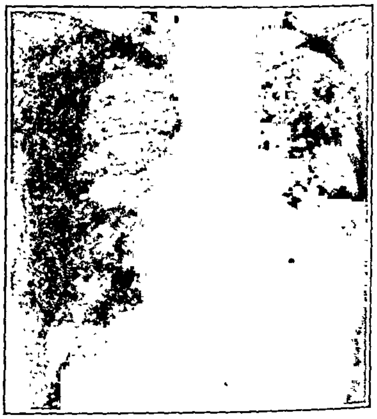
Fig. 3.—Extensive bronchiectasis.

Case 3.—Mrs. S., aged 38, had been suffering with a chronic infection of the accessory sinuses for several years. She had a chronic cough with expectoration of large quantities of exudate, which appeared to be secondary to the sinus infection. The amount of material coughed up increased so greatly in quantity and was of such a foul odor that, fearing tuberculosis, she consulted a specialist.

Examination of the sputum did not show any tubercle bacilli, and physical examination of the chest did not show any tuberculous lesions. Roentgen examination, also, done in the usual manner, did not reveal tuberculosis and gave only slight evidence of bronchiectasis. Through a bronchoscope, iodized oil was injected into the bronchi. Examination by this method outlined many bronchiectatic cavities which could not be shown in the usual manner. The roentgenograms demonstrate the value of this procedure in determining the presence of a bronchiectasis as well as the degree of involvement. This patient has been greatly improved by bronchoscopic treatment.

Case 4.—C., a man, aged 48, at the time of my first visit was sitting up in bed, suffering from considerable dyspnea and coughing up large quantities of foul smelling sputum. He had been treated by his family physician for bronchial asthma. He came to the hospital, and bronchoscopic examination showed chronic bronchitis with considerable exudate in the bronchi. This was removed by suction, and the improvement in his condition was most marked. After a few treatments the asthma and the attacks of coughing subsided, and the amount of exudate gradually lessened until the patient was free from all symptoms. He has been seen several times during the course of the past two years and has never had the slightest recurrence of his trouble.

This case clearly demonstrates the value of bronchoscopic treatment for such conditions, a result, in my opinion, which could not have been obtained by any other procedures.

Case 5.—Mrs. N., aged 37, entered the State Sanatorium with a history of having had a severe cough with expectoration, practically all her life. At various times she had had severe hemorrhages, but the sputum had always been negative for tubercle bacilli. Aside from this, her history was unimportant.

Physical examination showed bronchial breathing with increased voice sounds over the left lower lobe of the lung. A few moist râles could be heard. On bronchoscopic inspection there appeared to be a stenosis of the left bronchus. Iodized oil did not enter this part of the lung but clearly outlined the trachea and demonstrated the blocking or stenosis of the left bronchus, with carnification or atelectasis of the left lower lobe of the lung. The trachea was sharply outlined, and the bifurcation of the bronchi was plainly visible. The trachea was pulled slightly to the left, together with the heart and mediastinum. Iodized oil readily entered the right lower bronchi and no pathologic condition was made out on this side. It might be interesting to add that a diagnosis of pulmonary tuberculosis had been made in this case by three different roentgenologists before the patient came to the sanatorium.

Case 6.—L. N., a man, entered the hospital for suspected tuberculosis. He gave a history of pleurisy in 1926, pneumonia in 1927 and hemoptysis at times since 1923. The temperature had usually been normal and there had been no elevation of the pulse rate. Every three or four days he was having periods of profuse expectoration which had a very foul odor. On physical examination the right lung appeared to be perfectly normal; on the left side there was impairment over the entire lung with a few scattered moist râles from apex to base. There was suppressed breathing over this entire side. Roentgen observations following the injection of iodized oil showed a normal right lung. The upper lobe of the left lung showed a pleurisy, extending from the apex to the third rib, and obliteration of the costophrenic angle at the left base, also pleuritic in origin, with a mild degree of bronchiectasis or dilatation of the bronchi, extending from the third to the seventh rib. This patient was treated several times through the bronchoscope and showed rapid improvement. The odor virtually disappeared; cough and expectoration were also much lessened. He has gained in weight and his general condition has been greatly improved.

Case 7.—Mrs. M., aged 38, presented a very interesting chest condition. Physical examination showed consolidation of the lower lobe of the right lung, which was confirmed by roentgenograms. All other parts of the lungs appeared to be normal. There was no fever at any time; there were no night sweats, and no tubercle bacilli were ever found in the sputum. Clinically the case did not appear to be tuberculous but strongly suggested a new growth.

A bronchoscopic examination did not reveal any exudate or any suggestion of a new growth in the bronchi. The bronchus leading to the right lower lobe appeared compressed, very little air seemed to be coming out, and iodized oil would not enter this bronchus. It seemed probable that there was a consolidation of the lower lobe, nonpurulent in character.

As a new growth was still suspected, a thoracotomy was performed and a small section of tissue was taken for examination. Surprisingly there was no evidence of a malignant condition; the growth was tuberculous in character, an unusual case in view of the clinical picture.

The next two cases demonstrate the importance of bronchoscopy in cases of lung abscess. The first case was one in which surgical intervention was clearly indicated, while in the second there were multiple abscesses, communicating with the bronchi. This case was clearly one for bronchoscopic treatment.

Case 8.—F., a man, aged 26, was referred to the Bronchoscopic Clinic at the University Hospital for treatment of a lung abscess of the right lower lobe. He improved under bronchoscopic treatment, but iodized oil would never enter very far into the bronchus on the right side, and as there was an extensive, uniform area of involvement, it was decided that the best results could be obtained by a thoracotomy and external drainage. Under this procedure the patient made an uneventful recovery.

Case 9.—The other patient, Mrs. L., aged 42, was bringing up a great amount of purulent exudate. This condition had been present over a period of several months and was getting worse. No positive diagnosis could be made by the usual means. Four possibilities were considered: (1) lung abscess; (2) bronchiectasis; (3) an old pleurisy with drainage into a bronchus, and (4) chronic tuberculosis with extensive cavitation.

Through the bronchoscope several ounces of purulent material were aspirated by suction, and iodized oil was injected. A roentgenogram, made after this, showed numerous multiple abscess cavities which had not been revealed by the roentgenogram made before the injection. This case was certainly one for bronchoscopic treatment, and surgery was definitely contraindicated.

Case 10.—W., a man, aged 33, was sent into the hospital in order that the cause of a consolidation in the lower part of the left lung might be determined. His temperature had been between 100 and 101 F. for several weeks, but no exact diagnosis could be made of his chest condition. Tuberculosis was considered, but no organisms could be found. There was considerable expectoration. It was a question whether the condition was a lung abscess, a bronchiectasis or an unresolved pneumonia. Pneumography did not reveal any bronchiectasis or lung abscess, but the bronchi were partially occluded. In view of the clinical picture, a diagnosis of unresolved pneumonia was made.

Case 11.—Mrs. S., aged 45, was sent into the State Sanatorium for treatment of pulmonary tuberculosis. She expectorated great amounts of purulent discharge, but no tubercle bacilli were found in the sputum. She did not have a fever, and no physical signs of tuberculosis were made out. Roentgenograms did not reveal any significant changes in the lungs or bronchi.

A bronchoscopic examination was made, and it was noted that the bronchi were filled with exudate. After aspiration, iodized oil was injected, and numerous large bronchiectatic cavities could be demonstrated by means of roentgenograms.

The patient has improved greatly under bronchoscopic treatment. At present she brings up very little exudate; she has gained in weight, her skin is clearer and she feels much better in every way.

Case 12.—L. M., a girl, aged 6 months, was admitted to Provident Hospital, for intermittent cough and dyspnea. There was a history of attacks of coughing with difficulty in breathing during the past three weeks. Three days previously the coughing became more severe and occurred at more frequent intervals, associated with more marked dyspnea. There had been no vomiting or other gastro-intestinal symptoms. The temperature had not been elevated. The past history and the family history were irrelevant.

On examination in bed the child was seen to be well nourished and developed. She was apparently having some respiratory difficulty associated with a dry croupy cough. Examination of the eyes, ears, nose and mouth gave negative results. The child was having marked inspiratory and expiratory difficulty, as shown by retraction of the abdominal muscles and of the muscles of the neck. On percussion there was marked dulness at the left upper border from the left apex to the fourth rib anteriorly. Auscultation revealed marked suppression of breath sounds all over the left side of the chest, especially over the area of dulness both anteriorly and posteriorly. Breath sounds on the right were exaggerated. Scattered musical râles were heard in both lungs. Examination of the pharynx was negative. Wheezing respirations were heard at the mouth.

The patient had been referred to the Bronchoscopic Clinic at the University Hospital for examination, as a foreign body was suspected. Bronchoscopy did not show any foreign body, and a diagnosis of bronchopneumonia was made.

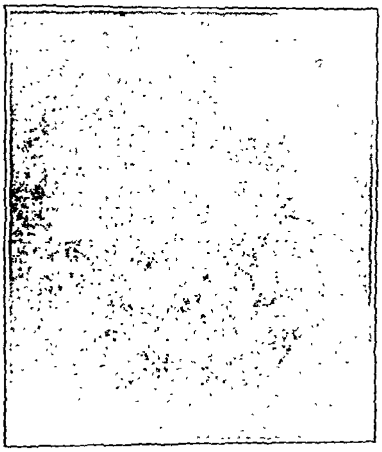

Fig. 4.—Localized lung abscess.

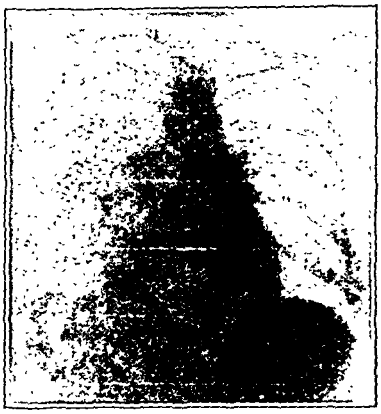

Fig. 5.—Multiple lung abscess cavities.

The patient stayed in the hospital for twenty days, during which time she had a temperature of 97.2 F. The pulse varied between 135 and 85, and respirations between 58 and 22. The weight increased from 13 pounds 8 ounces (6 Kg.) to 14 pounds 15 ounces (7 Kg.). All symptoms gradually subsided and the patient was discharged much improved.

Case 13.—M. D., a white girl, aged 17 months, admitted to the infants' ward in the Children's Hospital at Eudowood Sanatorium, Sept. 28, 1930, was sent to the hospital on account of dyspnea and wheezing. Her father was affected with tuberculosis, and the child had been definitely exposed. Following a cold in August, some difficulty in breathing had developed, with wheezing. A roentgenogram of the chest at that time suggested that there was some enlargement of the glands pressing on the trachea, which was thought to be tuberculous. Cultures taken from the throat did not reveal any evidence of diphtheria. The child was then sent to Eudowood.

After examination it was decided that there must be some other cause for the dyspnea, and a bronchoscopic examination was requested. The child was then referred to the Bronchoscopic Clinic at the University Hospital and on examination no definite obstruction in the trachea or evidence of pressure from without on the bronchi could be made out. However, there was a collection of dirty brownish mucus in the right bronchus. This was aspirated, and the dyspnea was immediately relieved. After this the patient gradually improved until all the symptoms had entirely subsided.

Case 14.—W. M. was admitted to the sanatorium for treatment of tuberculosis. His temperature was usually normal. Frequently he expectorated large quantities of foul smelling sputum. No tubercle bacilli could be found. Bronchoscopic examination was requested, and considerable exudate was found in the bronchi. This was aspirated, and iodized oil was injected, which demonstrated extensive bronchiectasis.

SUMMARY

The practical use of bronchoscopy as an aid to the diagnosis and treatment of diseases of the chest is increasing in favor. In many cases a final diagnosis can be made only through the help of endoscopy after all other means of investigation have failed. A well equipped central clinic unquestionably affords the best opportunity for the study of such cases, but for various reasons many deserving patients never reach such a clinic. It is apparent, therefore, that there is a fertile field for investigation for the bronchoscopist in hospitals for the treatment of pulmonary diseases.

It is earnestly hoped that the time will soon come when the management of all hospitals for the treatment of tuberculosis will insist on the establishment of a bronchoscopic clinic as an important department in such institutions.

104 West Madison Street.

ABSTRACT OF DISCUSSION

Dr. William F. Moore, Philadelphia: As Dr. Looper has pointed out, sanatoriums for the care of tuberculous persons have taken a large number of patients that could be benefited by bronchoscopy as a means of both diagnosis and treatment. Only a comparatively few years ago, when one thought of bronchoscopy it was only in terms of foreign bodies. That is now changed and laryngologists are thinking more of treating some local suppuration, and patients are coming in for diagnostic bronchoscopy entirely apart from foreign body work. Dr. Looper expresses the belief that bronchoscopic clinics can be established and will be established in connection with these institutions. I think the point is well taken. We have had occasion to see the necessity for this sort of thing at the Bronchoscopic Clinic in Philadelphia, where we see patients from the tuberculosis ward, both men and women, at the Philadelphia General Hospital. In going over the records I find that a large majority of patients that come for treatment of pulmonary suppuration have come either directly or indirectly through these wards or have been treated in other institutions. When one considers that it is necessary at the present time, although men are being trained for this work and bronchoscopic clinics are being established, for people to come long distances for their treatment, and when one also remembers that they should be treated at least at intervals of seven or eight days, it is evident that if the bronchoscopic clinics were already at hand in these institutions it would be of great benefit to the patients. I want to add that if these bronchoscopic clinics are established they should be established in such a way that they can get the help of the roentgenologist and, of course, the internist. At the Philadelphia Hospital, for instance, we had the choice of location when the new hospital was built, and it was considered important to have the bronchoscopic clinic in close relation to the x-ray department. For that reason it was put on the same floor and just across the hall. We frequently had to take patients from one floor to another, and after the instillation of iodized oil, time is a big factor in the end-result. The patient will cough, but if he can be taken from one clinic to another in a relatively short time the results will probably be better.

Dr. R. M. Lukens, Philadelphia: Bronchoscopy for foreign bodies, while spectacular, has been forced steadily to the background by bronchoscopy for obscure medical diseases. In a clinic in which fifty patients are treated weekly, it is probable that only a small proportion would be for foreign bodies. Physicians are rapidly realizing the value of bronchoscopy as a diagnostic measure and are using the established bronchoscopic clinics more and more. About nine years ago, Dr. Chevalier Jackson came to the conclusion that the field of bronchoscopy was not limited to foreign body work but could be used not only in suppurative diseases of the lung but also as a diagnostic measure in lung diseases of obscure origin. At that time he established a bronchoscopic clinic in the department for diseases in the Jefferson Hospital. The purpose of this clinic was to develop bronchoscopy along diagnostic and medical lines. He felt that any hospital or department in any hospital devoted to diseases of the lung should have a bronchoscopic clinic, and the history of bronchoscopy shows that he was right. Dr. Looper's report of cases shows the value of bronchoscopy as an aid to the internist and thoracic surgeon, and our experience at the Jefferson Hospital has been very similar to that of Dr. Looper. In the early days of the clinic, we received for bronchoscopic examination many cases which had been diagnosed tuberculosis in which tubercle bacilli were absent in the sputum, the main symptoms being cough, loss of weight, pulmonary bleeding, night sweats, and signs of pulmonary disease. Many of these cases proved to be nontuberculous according to the bronchoscopic observations, while in other cases the diagnosis of pulmonary tuberculosis was confirmed by finding tubercle bacilli which had not been found in the sputum. In one case in which the symptoms were not marked, the main symptom being blood-streaked, scanty sputum, which occurred at intervals without bacilli, bronchoscopic examination revealed a shallow ulceration in the left stem bronchus, which bled rapidly on being touched. A swab smear from this ulcer revealed numerous tubercle bacilli. Many cases could be cited in which small growths, stenosis, erosion of peribronchial lymph nodes into the bronchi, hemorrhagic points, compression and some nonopaque foreign bodies had been found in cases diagnosed tuberculosis over long periods of time. Bronchoscopy for diagnosis and as an aid to medical treatment is without danger when properly performed by qualified bronchoscopists. However, slight as are the risks of bronchoscopy, they can be kept at this low level only if definite, efficient bronchoscopic clinics are maintained.

Dr. Chevalier Jackson, Philadelphia: I think that all the bronchoscopic clinics in Philadelphia are heartily in accord with the conclusions of Dr. Looper, based on his interesting series of cases. Corroborating his point in regard to the number of foreign bodies dealt with compared with the number of cases in which the bronchoscope is used for diagnosis and treatment of disease, I should like to add that at the end of our last course, in going over the two weeks' work in the five bronchoscopic clinics, I found that in 310 endoscopies 7 were for foreign bodies—close to 2 per cent. In other words, only 2 per cent of the endoscopies we do are devoted to foreign body problems. I am often asked in a particular case, Would you advise bronchoscopy? When I am asked that question I feel as I think a gynecologist would feel if he were asked if in a given case he would use a vaginal speculum. To me a bronchoscope is a speculum for looking into the inside of the chest—after the internist has examined the outside and the roentgenologist has looked through. In regard to tuberculosis, we have had quite a number of cases in which the sputum has been negative over and over again in many different clinics. The patient finally comes to us with a diagnostic problem; we do a bronchoscopy; we aspirate the bronchi clean of secretion, and then we watch for a little bit of secretion coming out of some particular bronchial orifice; we get that little bit of secretion; and over and over again we have been able to find tubercle bacilli which were possibly present, but overlooked, in the gross specimen previously sent to the laboratory. I should like to emphasize two things: One should make one's technic as smooth and gentle as possible—not an ordeal for the patient. This is necessary to maintain the support of the internists. The other point is that one ought to emphasize everywhere that bronchoscopy is not a substitute for any other method of either diagnosis or treatment, outside of foreign body work. It is not a substitute, it is an addition to the other means, medical and surgical, for the diagnosis and treatment of pulmonary disease.

Dr. Murdock Equen, Atlanta, Ga.: I should like to mention two cases in which a foreign body was superimposed on a supposedly medical condition. A boy, aged 9 years, was admitted to the Emory University Hospital for bronchoscopic treatment. Four months previously he had aspirated a molar tooth. This had been followed by bronchopneumonia in the left base. The pneumonia was improved but was succeeded by a cough with a moderate amount of purulent sputum. His condition continued to grow worse. In a roentgenogram of the lungs, the tooth was discovered in the midportion of the left lung between the third rib anteriorly and the eighth rib posteriorly. There was complete atelectasis of the lower lobe. On bronchoscopic examination, the entire left bronchus appeared filled with secretions and granulation tissue. The removal of the secretions by suction and of the granulations by forceps was followed by profuse hemorrhage. The bleeding was controlled by the application of epinephrine and silver nitrate. As the child's general condition seemed extremely poor and cyanosis was marked, I decided to discontinue the examination and placed the patient in the oxygen tent. A transfusion of 200 cc. of whole blood was given several days later. Two weeks after admission, bronchoscopy was again performed and the tooth removed. On discharge, twenty-three days after admission, the left lung was practically clear and the patient left the hospital. The other patient was a boy, aged 6, admitted to the Grady Hospital with a positive Widal reaction and other clinical evidence of typhoid. A roentgenogram of the chest revealed the presence of a tack in the left main bronchus. A careful history failed to elicit the aspiration of a foreign body. Three days following the removal of the tack the Widal reaction was negative, the temperature was normal and the child was dismissed from the hospital.

INFANTILE ECZEMA

A STUDY BASED ON ONE HUNDRED AND SIXTY CASES [*]

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The material for this study was drawn from the children's allergy clinics of Washington University School of Medicine (St. Louis) and the University of California Medical School (San Francisco).[1] While attention was especially directed toward the rôle of allergy, other factors were not overlooked. The infants were studied on repeated visits to the clinics and the following data obtained: name, age, sex, race or color, family history, age at onset, age when first seen, skin test reactions, with response on subsequent visits, the nature of the allergens found positive and the relation to clinical manifestations. In addition the rôle of season, the effect of increasing age, the presence of infections and the response to therapy were noted. While conclusions may be difficult to draw in all instances, an attempt will be made to discuss the various observations.

Of a total of 160 patients ranging from 3 weeks to 4 years of age, 83 were studied in St. Louis and 77 in San Francisco. While no attempt was made to exclude any patients, the number seen in each locality during the study was very close to 50 per cent of the total. From this fact it is easier to contrast the effect of difference in climate, race preponderance and the like.

Table 1.—*Classification of One Hundred and Sixty Patients in St. Louis and San Francisco*

		Patients
Washington University School of Medicine (St. Louis)		83
University of California Medical School (San Francisco)		77
Total		160
Sex	Number	Per Cent
Male	97	60
Female	63	40
Race		
White	142	88
Negro	13	8
Yellow	5	4

There were ninety-seven males (60 per cent) and sixty-three females (40 per cent) with approximately the same percentages in both the St. Louis and the San Francisco groups. It is interesting to note that this slightly greater preponderance in the male was also seen in O'Keefe and Rackemann's [2] series (140 in 239 patients, or 59 per cent).

One hundred and forty-two or 88 per cent, of the patients belonged to the white race, thirteen, or 8 per cent, were Negroes, and five, or 4 per cent, of the patients were yellow. Needless to say, the Negro patients were confined to the St. Louis group while the orientals appeared only in San Francisco. No striking differences were found in the three race groups. The incidence of Negro and oriental patients is about what would be expected from the respective clinic groups. They are noted here only because the literature seldom mentions racial incidence.

A history of allergy of some form was given in the family history of ninety-two patients (57.5 per cent); while in sixty-five cases (40.5 per cent) the existence of a familial trend was absent and the history was not obtainable in 3 (2 per cent) of the cases. This is a considerably higher percentage with positive family histories than O'Keefe and Rackemann [2] found in their series. We believe, however, that the incidence is probably even higher. Experience leads us to keep the records open to correction since with frequent contact the parents may reverse a previous denial of familial allergy. This is partly due to their earlier failure to understand the question and partly due to increased interest in the study for themselves. Of the group giving a positive family history, seventeen had manifestations of allergy in the immediate family and the same generation, forty-seven in the preceding generation, while twenty-eight "blamed" the second preceding generation or cousins, aunts or uncles.

With regard to the age of onset, our figures are in close harmony with those of O'Keefe and Rackemann.[2] There were 105 patients, or 65 per cent, who had onset of symptoms before the sixth month, 23, or 14 per cent, between the sixth and the twelfth month, and the same percentage held for the group from the twelfth to the twenty-fourth month, while only 7 per cent had symptoms starting after the twenty-fourth month. The average age for onset of symptoms was 2 months.

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[*] From the Departments of Pediatrics, Washington University School of Medicine, St. Louis, and University of California Medical School, San Francisco.

[*] Read before the Section on Diseases of Children at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[*] The authors were assisted by Miss Frances Stern of Boston and her associates, who contributed innumerable wheat and egg free recipes as substitutes for pastes, so important in the diets of Italian patients. Assistance also was rendered by Miss Bernadette J. Shane, research assistant in allergy, Hooper Foundation for Medical Research, University of California.

[1] Previous studies in allergy include:
Smyth, F. S.: The Toxic Fraction in Certain Eczema Serums, J. Allergy 2: 173 (March) 1931.
Smyth, F. S., and Bain, Katherine M.: A Study of the Allergic Skin-Test Substance, ibid. 2: 177 (March) 1931.
Studies in Passive Transfer, *ibid.* 2: 181 (March) 1931.
The Direct Skin Test in Allergy, ibid. 2: 316 (July) 1931.
Enteral Absorption of the Antigen and the Apparent Failure of Antigen Secretion in Human Milk, *ibid.* 2: 282 (May) 1931.

[2] O'Keefe, E. S., and Rackemann, F. M.: Studies in Asthma, J. A. M. A. 92: 883 (March 16) 1929.

Colic, enterospasm or abdominal allergy, as mentioned by White[3] and Rowe,[4] was a frequent complaint. Its significance, however, was not always clear since causes other than allergy were often to be suspected. In the St. Louis group, twenty patients had colic as a striking complaint. But it was our observation that this complaint, even when related to the allergic reactions, does not necessarily precede the skin manifestations, as White[3] indicates. Certain carefully observed patients have had concomitant skin and abdominal complaints, while others have shown abdominal distress after the eczema had cleared. One patient had eczema and then asthma definitely related to food sensitivity. At 4 years of age this patient has typical abdominal cramps and diarrhea when the forbidden foods are surreptitiously obtained.

Table 2.—*Family History and Age of Onset of Disease*

Positive		92 (57.5%)
Family History: I (Same generation)	17	
Family History: II (Preceding generation)	47	
Family History: III (Second generation)	28	
Denied		65 (40.5%)
Not obtained		3 (2%)

	Age at Onset			
	0 to 6 Months	6 to 12 Months	12 to 24 Months	24+ Months
Number	105	23	23	9

ALLERGEN TESTS

The tests were made by both the cutaneous and the intracutaneous method, though the latter was used only after the first had been negative or doubtful. A more complete discussion of the tests has been given elsewhere.[5] Positive tests were given by 112 patients, or 74 per cent. This finding, however, needs further analysis since 20 of them when first tested as infants under 4 months of age were negative, becoming positive with increasing age. The youngest patient to give a definite positive skin test was 11 weeks of age and, we believe, is quite an exception. As a general rule we found that tests were usually negative before the fourth month. Twelve of the patients who developed positive tests with increasing age were under close hospital study. We have watched the skin test develop through faint positive to very strongly positive and, we believe, have controlled such factors as feeding, with the conclusion that the increasing age is probably the most important factor.

A strong analogy exists in the development of agglutinin, hemolysin and precipitin formation which increases with advancing age. From the previous data on age onset, it would seem that the skin test is not necessarily coincidental with the clinical symptoms nor necessarily, as will be discussed later, related to exposure to the allergen

The same analysis of the 48 patients (38 per cent) with negative skin tests is necessary. Eight, or 5 per cent of the total, were tested when under 4 months of age and were either not seen again or are still under observation. There were twenty-two patients over 2 years of age, who, we believe, presented another problem with the following possibilities:

1. Loss of cutaneous skin test which was earlier positive.
2. Incapable of forming skin test and neither earlier nor later developing the reactions.
3. Nonallergic dermatitis, i. e., related to physical agents, cold, trauma, and infection.

Later discussion may clarify part of these suggested possibilities.

ALLERGEN FREQUENCY

The foods were by all odds the most frequent allergens giving positive tests. Only two in the entire series reacted to inhalants without concomitant positive food tests. In the order of frequency, our food allergens paralleled those reported by O'Keefe and Rackemann.[2] The frequency with which the food allergens were positive is given in table 3.

The preponderance of positive tests in the latter part of the first year has led previous investigators[6] to suggest that the infants become sensitive when these foods are eaten. We would like, however, to suggest that this is not an entirely satisfactory explanation. Egg white, which in order of frequency in positive tests stands first, is nowhere near so frequent and early a part of the infant's dietary as cow's milk, which stands third. In fact, it is the custom in many clinics to use the yolk if egg is to be given the infant. This is usually started about the eighth month, when it is given hard-boiled and crushed with a fork. Such a preparation usually separates the white, which has relatively much less food value.

There must then be some other factor to account for the frequency with which egg-white is found on skin tests in infants before egg is usually included in the diet. As indicated elsewhere,[5] the transmission through breast milk, which is open to dispute, fails to account for the evidence of sensitization in those infants who were never breast fed. Placental transmission is more likely but still does not account for its position as prime offender. While perhaps it is entirely hypothetic, we would suggest that an answer may be found in the newer knowledge of the gross protein molecules. Here we find that the molecular weight of egg albumin is the common denominator of all protein molecules. In other words, other proteins are multiples of egg albumin. It may be possible that further sensitization depends on combinations or arrangements which follow some law of multiples or factors of digestive change.

Table 3.—*Allergen Frequency in Positive Reactors*

Allergen Tests			
Positive	112	Negative	48

Allergen Frequency in Positive Reactors			
Foods		Inhalants	
Egg-white	63	Pollens	6
Wheat	44	Feathers	5
Milk	32	Wool	1
Orange	12	Horse dander	1
Oats	11	Orris root	1
Potato	9		
Corn	6		
Peas	4		
String beans	4		
Rice	3		
Barley	3		

With regard to the response to tests with inhalant allergens, a total of fourteen reactors was found. With two exceptions (one infant, aged 14 months, reacting to wool and one child, aged 4 years, reacting to pollens), they all had simultaneous reactions to food allergens.

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[3] White, P. J.: Relation Between Colic and Eczema in Early Infancy, Am. J. Dis. Child. **38**: 935 (Nov.) 1929.

[4] Rowe, A. H.: Food Allergy, J. A. M. A. **91**: 1623 (Nov. 24) 1928.

[5] Smyth and Bain (footnote 1, fourth and fifth references).

[6] O'Keefe and Rackemann (footnote 2). Stuart, H. C., and Farnham, Marynia: Acquisition and Loss of Hypersensitiveness in Early Life, Am. J. Dis. Child. **32**: 341 (Sept.) 1926.

Six of this group reacted to pollens, the youngest being 15 months of age. Five of the group reacted to feathers, the youngest being 5½ months of age. The inhalant reactors were evenly distributed between the San Francisco and the St. Louis clinics.

PHYSICAL AGENTS

Considerable attention has been called of late to spectacular instances of abnormal response to cold, light, heat, and the like.[7] For the most part, these have been older individuals and no attempt has been made to evaluate the rôle of physical agents in a large group of younger individuals. Yet we believe that they may play a very important part.

In the St. Louis group, the great majority of our patients had manifestations chiefly in the winter time. Such factors as clothing, infection, household inhalants and changes in the infant's diet and the feeding of cows supplying the milk still left unsolved this seasonal preponderance. A definite story of aggravation after trial exposure to cold was given by nineteen of the patients. Eight of these gave negative skin tests which cleared up with the return of warm weather. One of them had an urticarial response to cold.

On the other hand, some of the patients seemed manifestly worse in sudden warm weather. In two instances this might have been due to the increased pollen content of the air. In another with urticaria from sunlight, the light rather than the heat seemed responsible. In San Francisco there is not so marked a seasonal variation but the frequent history of aggravation with fog. The latter, however, is accompanied by marked temperature change and hence may be considered in a similar category with seasonal change.

In general, with regard to the rôle of light, heat and cold, it would appear that sudden contrast or change is the stimulus rather than the element itself. In patients aggravated by cold, the house temperature is usually in sharp contrast with that outside and the prurigo or other condition is manifest when the patient returns to the warm dry house with this sudden contrast to the outside temperature. Until 6 or 8 weeks of age, the majority of infants are kept with rather constant temperature and humidity. At this time exposure which is too sudden will affect the majority of all infants.

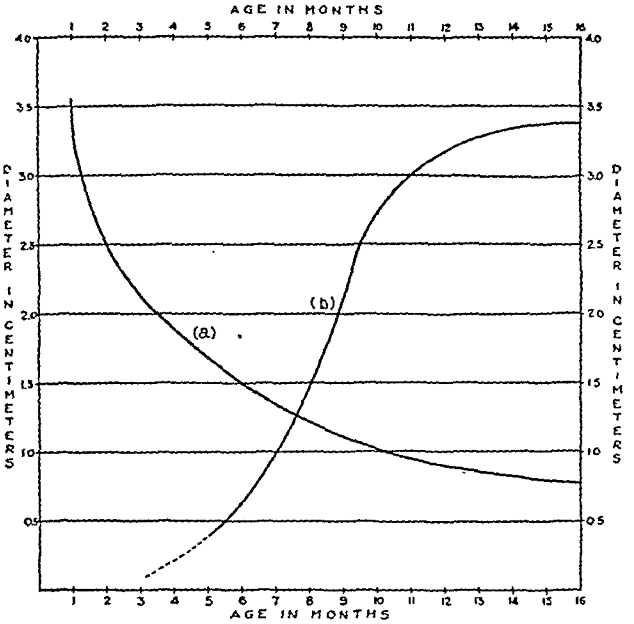
The rôle of trauma is somewhat similar. As shown elsewhere, the response to simple scratch of the skin is usually more intense, the younger the infant. While far from proved, it is quite possible that injury to the skin will itself liberate an agent which provokes further irritation. A vicious circle is thus established which seems borne out clinically; i. e. (epigrammatically) they scratch because they itch and they itch because they scratch. Some such explanation may apply to most of the external agents, clothing, cold, heat, light, and possibly to infection as well. Certainly the effect of salves and measures preventing scratching would indicate its plausibility.

Definite evidence was presented by seven patients that skin infection produced the eczematous response. In two of these, allergen skin tests were positive so that both factors required attention. Of the other five, three had intertrigo and two had phytosis, the treatment of which solved the entire situation. We believe that in addition to the possibility of sensitization to bacterial or yeast bodies and in addition to the increased permeability of the skin (with possibly greater response to contact allergens) infection of the skin may behave similarly to trauma producing a secondary irritating substance.

RESULTS OF TREATMENT

From what has been stated before, it is obvious that conclusions with regard to treatment are difficult. Since there seems to be a natural lessening of response to traumatic agents, including heat, light and infection, with increasing age, it is hard to know in all cases how much value may be attached to measures of therapy. Again it is quite necessary, in order to hold the patients, to use any and all forms of therapy. Although we endeavored to avoid confusion in treatment, this was not always possible.

Before discussing the results of dietotherapy, it would be well to outline briefly the principles guiding our diet supervision. These principles are not new but have been stressed by most pediatricians dealing with eczema:



Skin reactivity (diameter given in centimeters): curve *a*, nonallergic irritation; curve *b*, specific allergen tests.

1. Prolonged cooking often reduces the ill effects of foods. For example, raw apple may give trouble, cooked apple sauce may not do so. Evaporating or drying processes of milk may likewise alter the offending fraction. When both the lactalbumin and casein fractions of milk are at fault, milk boiled for four hours or preparations altered by evaporation or drying are used. In a typical case under study the patient was kept for one year on dried milk, following which four hour boiled milk was gradually substituted. As the result of slowly reducing the length of time for boiling the milk, the infant was gradually able to take cow's milk boiled only ten minutes, though she is still unable to take raw milk, junket or other preparations of uncooked milk.

2. A second guiding principle is the substitution of goat's milk, especially when there seems to be a sensitization to the lactalbumin of cow's milk but not to the casein. We feel, however, that for many reasons (sterility, uniformity and the question of anemia) evaporated goat's milk (Alpure brand) is preferable to the fresh product.

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[7] Duke, W. W.: Heat and Effort Sensitiveness: Cold Sensitiveness, Arch. Int. Med. 45: 206 (Feb.) 1930. Horton, B. T., and Brown, G. E.: Am. J. M. Sc. 178: 191 (Aug.) 1922. Alexander, H. L.: J. Allergy 2: 164 (March) 1931.

Regarding the new preparation of Hill and Stuart,[8] i. e., Sobee, we have had some satisfactory results but find that some infants, apparently because of sensitivity to barley, are unable to take it and infants with skin tests to barley may not do well.

3. Since wheat is the most common offending cereal, substitutes are used. Rice in any of its various forms is perhaps the most generally acceptable. Rye-crisp has been found of great value as a substitute for bread and crackers. Oats and potatoes may at times be used though, of course, these are more frequent offenders than rice or rye.

4. Of the fruits, orange and apple are particular offenders. In the vegetables, peas, beans, tomatoes, spinach and potatoes are encountered.

In many instances there seems to be a tolerance for small amounts while larger portions of food would give trouble. In the matter of feeding some of those able to take a little milk, gelatin has been added. By this combination the protein requirement may be nearer complete, gelatin never having proved offensive. Those patients with persistent negative tests were none the less suspected of food sensitivity. A diet was instituted composed of the least frequently offending foods as judged by the allergen frequency of those giving positive tests. Finally, we feel that a successful diet should allow all the expected requirements. Patients have come under our direction who, because of negative tests, had been placed on sweeping restriction of all animal protein. One such patient, we believe, presented nutritional edema and in four days' time lost considerable weight when evaporated milk was given for the first time in eight months. Other suggestive nutritional disturbances might be cited but are not within the scope of this paper. It does seem logical, however, that, to be successful, the diet itself should guarantee normal nutrition.

Table 4.—*Results of Dietotherapy*

	Test Positive	Negative	Total
Complete relief	32	15	47
Decided improvement	15	3	18
Slight improvement	8	3	11
Of no value	2	18	20
			96

The question will be raised as to the value of graded administration of the offending antigens. In six cases egg-white was administered. In two of these, capsules of powdered egg-white were used; in four, dilute egg-white solution. Two of the six so treated were able to include egg in the diet, but one of these after an interval of one week without egg reverted to his previous intolerance. All the others had such a stormy course during treatment that it was abandoned. Hence we have felt that eradication is a safer measure for most clinic patients than graded administration for tolerance.

A total of forty-seven patients (approximately 30 per cent) had a spectacular relief by dietotherapy alone. Of these, thirty-two were from the test-positive group, and fifteen from the group with negative skin tests. In eighteen patients the diet was decidedly a factor, fifteen giving skin test reactions and three not doing so. In thirteen the diet helped but the effect was not so clear-cut. The diet was of no value in twenty patients. Four patients tolerated evaporated goat's milk much better than any other milk. Three of these reacted to cow's milk lactalbumin and one of them failed to give positive tests. Sobee was given to eight patients and five did well; but two of them reacted to barley and fared poorly on Sobee, and one did not do well for no plausible reason. Six patients were exclusively breast fed. Diet supervision of the mother seemed to help in two of these infants. In another infant artificial feeding seemed more successful, though we do not advocate this as the treatment of choice.

ASTHMA

Respiratory symptoms developed in a total of twenty-three patients (San Francisco twelve and St. Louis eleven). The youngest was 5 months of age and, as mentioned before, gave skin reactions to feathers. In two patients pollen treatments proved of value for the respiratory symptoms of hay-fever and for the simultaneous eczema as well. Two patients died while under observation, both deaths being sudden. One on autopsy presented nothing beyond an enlarged thymus, though, with a healthy state of nutrition and development, this cannot be assumed as the causal factor any more than anaphylaxis. The other patient died suddenly two hours after diphtheria antitoxin. Skin tests, including horse dander and serum, as well as foods, had been negative. The patient, however, was definitely clinically sensitive to egg, wheat and orange.

Factors such as dehydration, weight disturbances and acid therapy have been under observation and may be reported later. At the present time no definite conclusions have warranted discussing them here.

SUMMARY AND CONCLUSIONS

Eczema is the response of the skin to irritation. The source of that irritation may be single or multiple, related to local infection, to cold or heat, or to intolerance of an allergic nature. The allergen frequency is not entirely explained by contact but probably on some immunochemical mechanism. While skin tests are often of great value, they rarely develop before the fourth month and may be lacking entirely. In other words, the capacity to form skin tests and the clinical reactivity are independent variables but frequently related. The skin of infants is particularly susceptible to trauma and to sudden changes of temperature. Such injury may itself establish a vicious circle. With increasing age this may entirely disappear. In other instances allergy must be considered as an additional factor. One hundred and sixty patients are surveyed with regard to the various factors. In treatment the diet must not be so restricted as to prevent normal nutrition, since sweeping restrictions may be dangerous.

ABSTRACT OF DISCUSSION

Dr. John Aikman, Rochester, N. Y.: I am sure all feel that the old term "eczema" is unsatisfactory and that it probably covers a number of conditions not now understood. As time goes on these will be explained and better names applied. The etiology in many cases is obscure and the problems of eczema are not all yet solved. However, Dr. Smyth has shown that by careful study a large group of allergic persons may be separated out and given special beneficial dietetic treatment. He does not say that allergy will explain all eczema, but that it is most valuable in a large number of cases. Following the earlier reports of Blackfan, Schloss and others, many were disappointed in the results they were able to obtain with skin tests, especially in eczematous children on an exclusive milk diet, but who gave negative tests for milk. I am glad that the doctor has pointed out the cause of the failures and especially that children under

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[8] Hill, L. W., and Stuart, H. C.: A Soy Bean Food Preparation for Feeding Infants with Milk Idiosyncrasy, J. A. M. A. 93:985 (Sept. 28) 1929.

4 months of age give negative skin tests. Success in the treatment of eczema in private practice presents some special features. Skin troubles are embarrassing. A small area of eczema which can be seen may cause as much worry to the parents and friends as a heart lesion. The child with eczema is not as a rule seriously ill. Fortunately, as the child passes the first year there is a tendency to recover. This should be pointed out to the parents; also that, though much of the eczema may clear up, small areas of irritation may remain until the diet becomes more general. Many parents object to the expense, annoyance and pain of numerous skin tests, especially to repeated tests. Fortunately, many cases belong in the group of irritative eczemas that appear first on the exposed parts of the body. Good results may usually be obtained by fairly simple local treatment. The cooperation of a dermatologist is of great value. If these cases do not clear up, skin tests should be made. Dr. Smyth has spoken of the importance of keeping up the child's general condition. I hesitate to remove a baby from breast milk or substitutes when it is in good condition except for the annoyance of the skin rash. After changes to substitutes, I have sometimes been disappointed to find that the child has developed diarrhea or other evidences of indigestion. I should like to ask the doctor how many of the children with allergic conditions have shown asthma later, and how soon after the disappearance of the eczema the asthma has developed.

Dr. Bret Ratner, New York: I should like to say a word about the persons who react to foods of which they have never partaken. I have for several years been interested in the question of congenital protein hypersensitiveness and have shown by animal experimentation that the fetus can become sensitized in utero. I then showed that the human being also can become sensitized in utero, and it seems to me that in certain of the cases Dr. Smyth presented the patient became sensitized in this manner.

Dr. C. U. Moore, Portland, Ore.: I should like to ask Dr. Smyth the average number of food tests made and what the maximum was on any one of these children.

Dr. Francis Scott Smyth, San Francisco: With regard to the question about the number developing respiratory symptoms, it would be guessing as yet to make a final statement, though twenty I thought very definitely were developing respiratory allergy under observation. With regard to the tests, the question asked by Dr. Moore, the maximum I put on is about 72 and the average about 40. It has taken a great deal of time in getting them all, and of course that is open to some criticism since one cannot get them all on at the same time. With regard to Dr. Ratner's discussion, I was anxious to hear his interpretation and I have had, since following his work, a similar instance of the mother's diet during pregnancy apparently affecting the sensitization. I cautiously avoided the discussion because I am firmly convinced that placental transmission is more likely a source of sensitization, and I think curve *b* rather speaks for some such explanation.

His Friends.—Do you want to know what I am doing? I devote myself to my friends, with whom I enjoy the most delightful intercourse. With them I shut myself in a corner, where I escape the windy crowd and either speak to them in sweet whispers or listen to their gentle views conversing with them as with myself. Can anything be more comfortable than this? They never hide their own secrets, yet they keep sacred whatever is intrusted to them. They never divulge abroad what we confide freely to their intimacy. When summoned they are at your side; when not summoned they do not intrude. When bidden they speak; when not bidden they are silent. They talk of what you wish, as much as you wish, as long as you wish. They utter no flattery, feign nothing, keep back nothing. They frankly show your faults but slander no one; all that they say is either cheering or salutary. In prosperity they keep you modest, in affliction they console, they never change with fortune. They follow in all dangers, abiding with you even to the grave. Now that you may not miss the meaning of my metaphor, pray understand that all I have said about these friends to be meant of books, companionship with which has made me a truly happy man.—Erasmus.

HYPERTENSION

THE VALUE OF CALCIUM SALTS PLUS DIET IN ITS MANAGEMENT; A POSSIBLE CLASSIFICATION AND AN HISTORICAL PERSPECTIVE *

N. S. DAVIS III, M.D.
CHICAGO

During the past ten years or so I have been particularly interested in hypertension. About the time that Luckhardt, Dragstedt and their collaborators brought out their work on calcium lactate as a preventive of parathyroid tetany in dogs I commenced using it in hypertension on the theory that if it prevented tonic spasm in skeletal muscle it might also prevent tonic spasm in arteriolar muscle. At first it was administered in doses of 15 Gm. in water three times daily before meals. This seemed to cause a marked improvement both subjectively and objectively but was difficult and unpleasant to take. The dosage was then gradually reduced to 4 Gm. three times daily, but this did not seem to be as effective so it was increased to 8 Gm. three times daily. I am now reporting the results of the treatment of fifty-five patients treated by this method at the Northwestern University Medical Clinic.

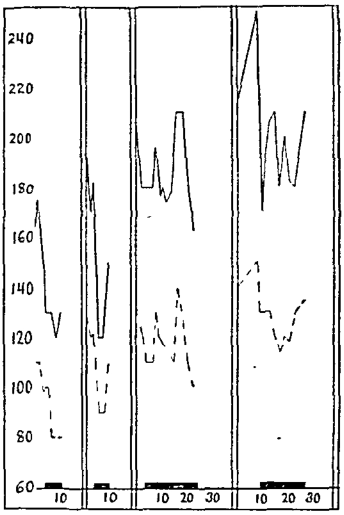

Chart 1.—Marked improvement under calcium lactate therapy as shown in four cases. In this and succeeding charts, the horizontal lines represent pressure readings and the vertical, time in weeks. The spaces blocked in at the base of the charts indicate the time during which calcium lactate was being administered.

In addition to the calcium lactate therapy, 8 Gm. before meals, the patients were given a diet low in salt and protein, with much of the protein from milk and with sufficient fruit and vegetables to make it adequate in every way. However, it is doubtful whether many of the patients were for financial reasons able to follow the diet accurately even if they had sufficient intelligence to do so. In fact, one patient (the first case in chart 4) said "How can I follow this diet when the county gives me only beans?"

In chart 1 are illustrated the blood pressure curves of four patients who appeared to improve either immediately after the calcium lactate therapy was instituted or *within a few weeks of its inception*. As a rule, patients were directed to report every second week and were given sufficient calcium lactate to last for that period.

In chart 2 is a similar group of five blood pressure curves in which there was no evidence of improvement under calcium therapy. In charts 3 and 4 are also curves which do not seem to have been affected one way or another by the calcium therapy. These curves are typical of those of patients who were under observation for a relatively short period.

Next to be considered are curves that are typical of the cases that were under observation for two years or more. In chart 5 there is the curve of a patient whose pressure dropped to within normal limits on two weeks of calcium therapy and remained there, as shown by only three or four readings during the next year or so. After the seventieth week following admission, the pressure readings were more frequent and calcium therapy was maintained from the seventy-eighth to the one hundred and thirty-ninth week. It seems that this patient, a woman, was not benefited by the calcium therapy; that the variations in the blood pressure may best be accounted for by classifying her as one who had intermittent hypertension. The curve in chart 6 shows a spontaneous remission shortly after her first admission with a return to a high level when readmitted a year later. There was an apparently marked response to calcium therapy which persisted as long as it was maintained. After the calcium lactate was stopped, the pressure dropped to a low normal but two weeks later was higher than previously recorded. Again there was a prompt response to calcium lactate, but twenty-nine weeks later, while calcium lactate was being taken, the pressure again went to a high level and again came down. This curve is also suggestive of an intermittent hypertension.

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* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

Chart 2.—The first case shows a marked drop without therapy; the second a drop before and a rise after the beginning of calcium therapy; the others show essentially negative results with calcium therapy.

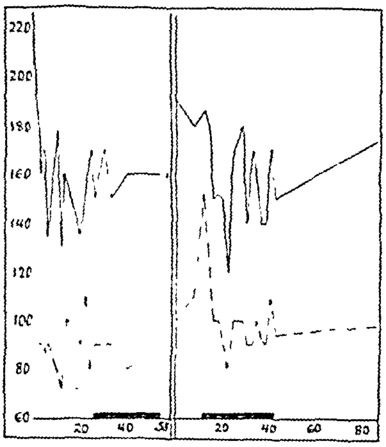

Chart 3.—In the first case there was a marked drop in pressure before calcium therapy was instituted and no change after; the patient was found dead in bed about four weeks after her last visit to the clinic. In the second case there was a marked fall in pressure after calcium therapy with a return to almost the same level while under treatment.

In chart 7 is the curve of a patient who took calcium lactate practically constantly for the 221 weeks she was under observation. She insisted that she felt better when taking it, though as far as could be seen it did not have much effect on the blood pressure; though, of course, one cannot say what would have happened if she had stopped it. As a matter of fact, all the patients stated that they felt better while taking the calcium lactate, and I believe that it was this that made it possible to keep them under observation for so long a time.

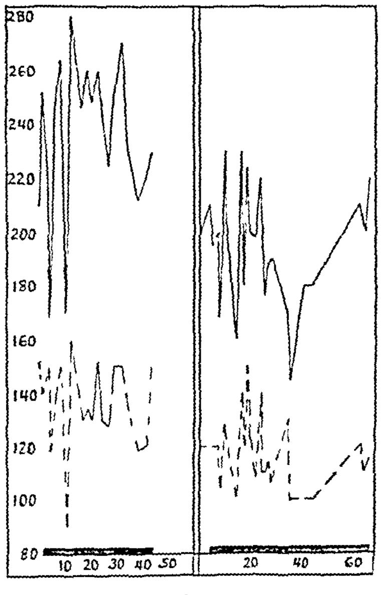

Chart 4.—In both these cases the pressure curves varied greatly under calcium therapy, but there was no real improvement during the period of observation.

The curve in chart 7 is one of a moderate hypertension with occasional remissions to within normal limits. Chart 8 is the record of a Negro, aged 75, at his first admission; the curve is again that of moderate hypertension with occasional remissions to normal limits both before and after instituting calcium therapy. From time to time the patient had symptoms of heart failure, both anginal and congestive, sometimes when the blood pressure was high, at others when it was relatively low.

In chart 9 the curve is continuously high and is not unlike the temperature curves in patients with continuous septic fever. Again, while the pressure dropped considerably during the first eight weeks of therapy, the calcium lactate seems to have had little if any influence on the curve as a whole. In chart 10 is the curve of the patient who was under observation for the longest time. The pressure was constantly high when recorded during the first 230 weeks of observation. After calcium therapy was instituted the readings were more frequent and averaged lower than before, but it must be noted that after about the two hundred and forty-fifth week there were symptoms of cardiac infarction, confirmed by electrocardiographic studies.[1] So it is probable that the lower blood pressure while under calcium therapy was due at least as much to a failing myocardium as to the therapy.

In charts 11 and 12, the curves represent those of patients in whom the pressure continued to rise rather steadily whether or not they were under treatment. While the rise is not as rapid as in many cases of malignant hypertension that have been reported, the curves are steadily rising. It is interesting to note that of these two patients, both women, one was 37 and the other 45 when admitted to the clinic.

While it is impossible to draw any conclusions from the study of so small a group of patients—only thirty-two were under observation for a time long enough to make tentative classification possible—it seems that hypertension may be classified as intermittent, remittent, continuous or pernicious, just as was another symptom, fever, when the clinical thermometer was as new an

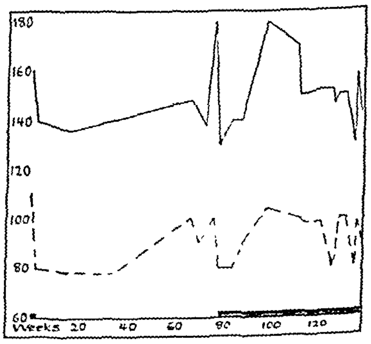

Chart 5.—In this case calcium therapy had little if any effect on the blood pressure curve. It seems to be one of those cases in which the hypertension is intermittent.

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[1] Davis, N. S. III: M. Clin. North America 13: 406 (Sept.) 1929.

instrument as is the sphygmomanometer. Furthermore, while I am not going into the etiology of hypertension in this paper, it seems that there are many etiologic factors and many pathologic conditions or diseases of which it may be a symptom, just as there are many causes for and many diseases of which fever is a symptom. The malignant or pernicious hypertensions are generally recognized as being different, if only in degree, from the more common essential hypertensions. It is possible that essential hypertension is first intermittent, then remittent, then continuous. If this were the case, there should be more evidence of cardiac and renal damage as shown by electrocardiograms, retention of nitrogenous elements in the blood, renal function tests and urinary conditions in the continuous than in the remittent, in the remittent than in the intermittent cases. However from the accompanying table it will be seen that, in this series, at least, such differentiation is not possible; that the changes in one group are as great as in any other. The fact that the average age of the intermittent group is 46.6 years, the lowest of any save the pernicious, would support such a theory; but the fact that the average age of the remittent group is 59.3, whereas that of the continuous group is only 51.5, would not.

As indications of arterial disease are present in all, it would seem logical to expect that cardiac infarction might occur at any time in the intermittent, remittent or continuous group and that cerebral hemorrhage might occur in any of them at a time when the pressure is up. The deaths of new policyholders from cardiac and cerebral accidents that so trouble the insurance companies may perhaps be explained by the fact that these policyholders had intermittent or remittent hypertension and were examined at a time when the pressure was normal and in accordance with insurance practice, not with sufficient care to bring out changes that could be found only by the electrocardiogram or by most careful studies of renal function and blood chemistry.

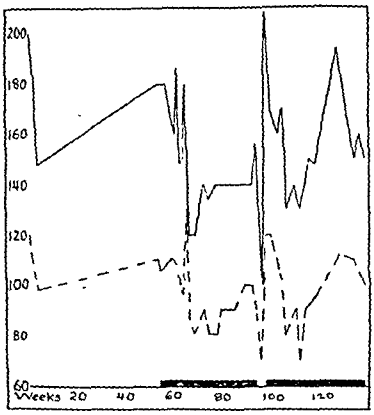

Chart 6.—Another case of intermittent hypertension. After thirty-seven weeks of calcium therapy with an apparent marked improvement, the calcium was stopped; there was a further drop in pressure and then a marked rise with a second drop when calcium therapy was instituted; however, there was another marked rise in pressure while under calcium therapy so it is doubtful whether the cessation of the therapy had anything to do with the previous rise.

Summary of Thirty-Two of the Fifty-Five Cases in this Study that Were Under Observation Long Enough to Warrant Classification *

	Intermittent	Remittent	Continuous	Pernicious	Total
Number of cases	8	9	13	2	32
Large Heart:					
2 M. plate	7	7	8	0	22
Pathologic cardiograms	5	7	13	2	27
Blood nonprotein nitrogen:					
Increased	2	3	3	1	9
Normal	2	0	1	1	4
Blood creatinine:					
Increased	1	0	1	1	3
Normal	1	4	2	1	8
Phenolsulphonphthalein test:					
Normal	4	6	3	0	13
Low	2	2	6	0	10
Urine:					
Fixed specific gravity	2	0	3	1	6
Albumin present occasionally	7	7	12	1	27
Casts present occasionally	5	2	10	1	18
Average age	46.6	59.3	51.5	41	52.1
Race:					
White	4	5	8	2	19
Negro	4	4	5	0	13
Sex:					
Male	4	2	5	0	11
Female	4	7	8	2	21

* There is not enough difference between the groups to make it probable that hypertension is first intermittent, then remittent, then continuous. The pernicious or malignant hypertensions are more common in younger individuals and are generally regarded as a special variety of essential hypertension.

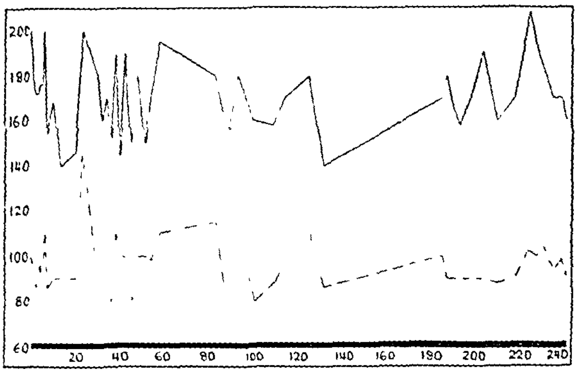

Chart 7.—This patient was under observation off and on for a period of 221 weeks, during all of which time she was taking calcium lactate. While her pressure was elevated, as a rule, there were frequent remissions.

SUMMARY

1. Calcium lactate, 8 Gm. in water half an hour before meals, plus a low salt, low maintenance protein diet, with most of the protein from milk, moderate in total amount but adequate in all respects, causes considerable subjective improvement in patients with hypertension but objectively is of little value.

2. It seems that hypertension, like fever, may be intermittent, remittent, continuous or pernicious.

3. It seems that, like fever, hypertension may be a symptom of several diseases or pathologic conditions for which there may be various causes.

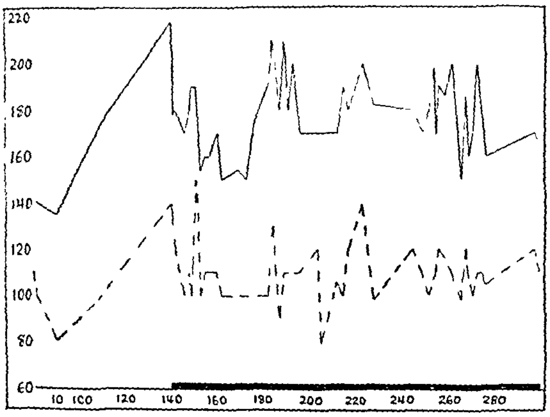

Chart 8.—Another case in which there were remissions to within normal limits, both when under calcium therapy and before it was instituted. In this case some of the remissions were associated with symptoms of heart failure. The patient was a man, aged 75, when he first visited the clinic.

4. It seems that just as our forefathers sought antipyretics to lower fever without considering the disease of which it was a symptom, we are seeking depressor substances to lower the blood pressure instead of con-

centrating on the description of the diseases of which hypertension is a symptom and their differentiation.

CONCLUSION

I should like to emphasize two points:

1. No cure for hypertension will be found until we are able to recognize the conditions of which it is a symptom.

2. The value of any therapeutic agent in the treatment of hypertension cannot be determined in a few days or weeks but only after months or years of trial.

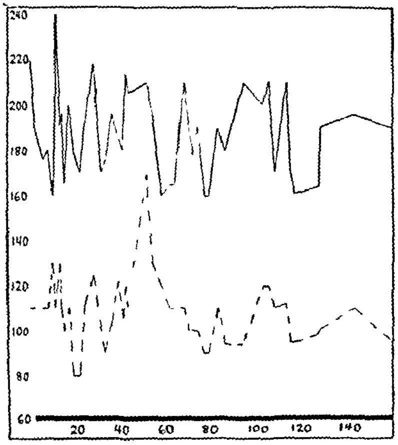

Chart 9.—The pressure in this case was continuously elevated, though it varied considerably from week to week. It seems probable that the calcium therapy had little if any influence on the pressure.

700 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. David Riesman, Philadelphia: Dr. Davis's classification of hypertension as continuous, remittent, intermittent and pernicious in analogy with the classification of fever is interesting and clinically useful; the ideal classification of hypertension is, however, one based on etiology. But for that it will be necessary, I fear, to wait a long time, and until then one must be content with symptomatic and anatomic classifications that will not advance the treatment or prevention a great deal. The most interesting and important type of hypertension is that called essential. Not being complicated by any underlying organic disease it is apparently simple, and the approach to it ought to be simple, but the approach has not yet been found. While in the last analysis it is, as suggested by Dr. Davis, only a symptom, it seems to me that it partakes in many ways of the nature of a clinical entity, and the profession is, I think, so considering it. The diagnosis of essential hypertension is easy. The patient is usually an individual, otherwise healthy, of middle age, in whom the arteries are not hard, whose kidneys function normally, and who does not have aortic insufficiency or hyperthyroidism. Common as these cases are, the reason why they occur is unknown. Heredity is a factor but not an explanation. Two elements it seems to me are important: psychic factors and toxic agents. Both of these seem to act as vasoconstrictor influences. The psychic factor is ignored by many. The toxic factor has been searched for, but so far not with encouraging results. Whether the hypothetic toxins are hormones acting in excess or whether they are exogenous or autogenous poisons, or whether there are disturbances in the vitamin metabolism is not known. Studies on the carotid sinus and on the depressor nerve in animals, showing the powerful influence that these structures have on blood pressure, suggest interesting leads that may in time be valuable. It is important always to take the diastolic pressure as well as the systolic. Those whose diastolic pressure is high are in greater danger than those in whom it is low; cephalopathy, coronary closure and cardiac failure seem to be the most frequent end-results. Vertigo is sometimes the earliest of all symptoms, inaugurating decompensation. With regard to treatment, as Dr. Davis has said, there is no drug that cures hypertension. The best treatment is psychotherapeutic. To take the load off the patient's mind by assuring him that hypertension is not synonymous with immediate or early death does more than all the drugs in all the pharmacopeias. The physician must enter into every detail of the patient's activities, mental and physical, and he must so shape them that the patient keeps within his limits. That type of handling requires time, patience and understanding, but I believe there will be plenty of reward for it.

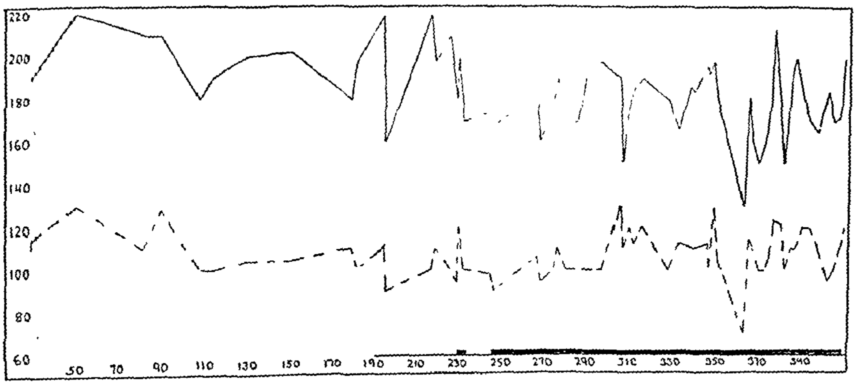

Chart 10.—This patient, a woman, also had a continuous hypertension, which averaged lower while under calcium therapy. On the occasions when her pressure dropped below 160 there were symptoms and electrocardiographic evidences of cardiac infarction. It is entirely possible that the apparent improvement under calcium therapy was due to myocardial weakness rather than to the treatment.

Dr. Soma Weiss, Boston: Optimism in one's efforts, and skepticism in the evolution of the results are essential in the field of therapeutics. This paradoxical combination of qualities is especially important in the field of diseases associated with high blood pressure. The well recognized spontaneous fluctuations in the height of the blood pressure and in the symptoms make the evaluation of therapeutic agents particularly difficult. Unless the therapeutic results are striking in a large group of cases, longer experience usually brings disappointment. This has been my experience with a number of substances which I have studied during the past few years, with the aid of quantitative methods applicable in man. Neither the height of the blood pressure nor the symptoms of the patient have a definite relationship to the fundamental etiology. The symptoms are the expression of disorders of the central nervous system and usually of an unstable vasomotor system. There is, moreover, no relationship between the symptoms and the height of the blood pressure. These criteria, therefore, without further specification and reservation, cannot be used as indications for the use of a therapeutic agent with the claim of beneficially influencing the natural course of the disease. Dr. Davis rightly emphasized caution in interpreting results. Once more, the management of the individual patient rather than the administration of a chemical substance is the center of the problem.

Dr. F. Ashley Faught, Philadelphia: I believe, as has been stated, that one should treat the patient from the standpoint of etiology and endeavor by careful examination to determine the underlying causes and not treat the blood pressure. I think the adage "Moderation in all things" should apply to the consideration of blood pressure, remembering that it is a symptom and not a disease. I would caution that one must consider original blood pressure observations as notoriously misleading. One frequently sees patients for the first or second time with blood pressure in distinctly the hypertension level who thereafter, ignoring that factor in the treatment, fail to show even over many years the same high level as first encountered. I believe that one should establish the patient's average blood pressure level, his pathologic norm, before considering the relation of blood pressure to his condition; and I am sure many will agree with me that very little is known of the relation of the actual blood pressure level, either systolic or diastolic, to many conditions met. Why is it that patients with an average systolic pressure of from 160 to 175 may die suddenly, whereas on the other hand some patients with pressures well above 200, sometimes above 300, run on for an interminable number of years, apparently without serious effects from the high blood pressure? In closing, I wish to reiterate what has been said. One should follow the blood pressure, but not depend on its level for treatment, or indeed for diagnosis; but by careful study and close observation one may hope to find the fundamental causes producing the elevated pressure, so that by complete control of the patient's habits and environment, and ignoring blood pressure, one may hope to restore that patient to a better level of health, which will allow him to take care of the change in blood pressure without specific medication.

Dr. S. A. Savitz, Philadelphia: So far we all agree with regard to rest, diet, and the employment of nitrites when absolutely indicated. I am of the opinion that rest is the most essential factor and that the importance of rest to patients is not emphasized. Even busy people could easily take an hour or two of rest every afternoon. I regret that the previous speakers did not mention a word about calcium in the treatment of hypertension. I do not agree with the author. Calcium salts are used a great deal and most effectively in anemia and cardioneurasthenia. When associated with low blood pressure, not high blood pressure, it seems to steady and strengthen the heart. It is also used at times in conjunction with digitalis to overcome persistent weakness of the myocardium, and at times has been found valuable in flutter as an adjunct to digitalis. Some authorities claim good results from calcium salts to ward off heart failure in pneumonia, influenza and other infectious diseases; that the calcium salts are contraindicated in the presence of a pathologic fibrosis of the vessels of an individual showing high blood pressure is, to my mind, an undisputed fact. Admitting that the calcium salts would be of value in cases of hypertension, and this I doubt, certainly in extraordinarily large doses they couldn't possibly do any good because the gastro-intestinal disturbances are marked and persistent.

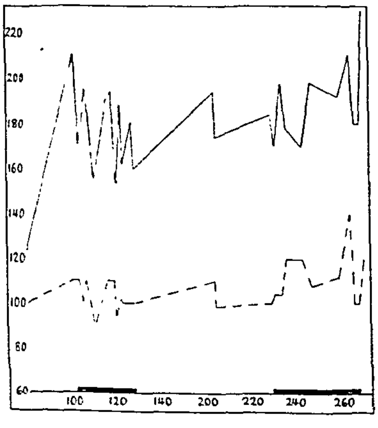

Chart 11.—One of the cases in which the pressure tends to rise steadily in spite of treatment. This is probably one of the cases that has been described as "malignant hypertension."

Dr. H. O. Mosenthal, New York: I should like to mention the fact, which Dr. Riesman has stressed, that malignant hypertension, or pernicious hypertension, really depends on nothing more than the height of the diastolic pressure, and that one should not use this term unless one has such a relationship in mind. Patients with a high diastolic blood pressure are the ones who are in jeopardy and who may be afflicted with fatal complications at any moment. This is not an invariable rule but is the one that furnishes the most reliable prognostic guide. Drs. Davis and Riesman have both mentioned the advisability of low protein feeding in the treatment of hypertension. If this dietetic therapy is carried out it should be remembered that if a hypertensive or nephritic patient, or for that matter any human being, is given too little protein to eat, for a long period, he is prone to become weak and anemic; and because of the starches and fats which are substituted for the proteins he is likely to put on flesh and become obese. Therefore it is possible that a good deal of harm may be done if a low protein, high fat and carbohydrate diet is carried out with too much enthusiasm. In fact, patients as well as normal persons do better if one errs in the opposite direction and gives them too much protein food rather than too little. By restricting the protein in cardiorenal disease, one aims at controlling the hypertension and the pathologic processes in the kidneys. Proteins in themselves will not increase blood pressure; there is ample demonstration of that contention. I am beginning to believe that larger amounts of protein than are ordinarily consumed by man will not damage the kidneys even when nephritis is present. Patients live longer and are more vigorous with a rather high protein diet than with a low one, because they do not become anemic, they do not develop obesity, and their tissues maintain a better tone. Patients in whom the blood urea nitrogen is elevated, that is, those having a certain degree of renal insufficiency, apparently are not invalided as readily if they are allowed a fair protein ration as if the nitrogen containing foods were interdicted entirely. This is a radical departure from the ideals of dietetic therapy of cardiorenal disease which was present fifteen, ten or even five years ago, but I believe it is the form of diet most observers interested in Bright's disease are advocating at the present time.

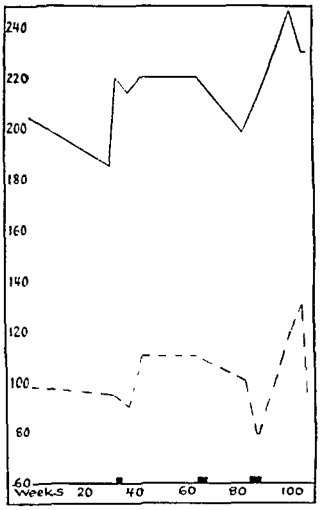

Chart 12.—A patient who was most irregular in attendance at the clinic and who had a steadily rising blood pressure; undoubtedly a "malignant hypertension."

Dr. Nathan S. Davis III, Chicago: I agree with Dr. Mosenthal that the low proteins should have been a low maintenance protein that would give these patients on the average from 60 to 75 Gm. of protein a day at least, and if they did have evidence of renal involvement and were excreting protein more would be given. Those that were overweight I put on a relatively low diet all around to try to get reduction in weight.

ASCARIS LUMBRICOIDES

LOSS OF INFESTATION WITHOUT TREATMENT *

A. E. KELLER, M.D.
NASHVILLE, TENN.

A study of intestinal parasites in children was made between November, 1929, and January, 1930, in one of the state institutions just outside of the city of Nashville. A total of 476 children were examined, ranging in age from 7 to 18 years. Of that number, 5 per cent were found to be infested with Ascaris lumbricoides, 6.5 per cent with Trichuris trichiura, 4.6 per cent with Necator americanus, and 4.8 per cent with Hymenolepis nana.

During December, 1929, a sanitary inspection of the buildings and premises was made in order to ascertain whether or not conditions were favorable for the transmission of intestinal parasites. Excreta and other waste material are disposed of by means of a sewage disposal system which is connected to the city of Nashville sewers. The water supply of the institution is obtained from the city water system. The interiors of the buildings, dormitories and the equipment, including the bathrooms and toilets, were clean and in good condition. The grounds were clean and well kept, and no evidence of human fecal pollution was found anywhere on the premises. The conclusion reached after the inspection was that there was very little opportunity for the transmission of intestinal parasites in and about the institution, and that the children who harbored them were infested before admission to the institution.

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* From the Department of Preventive Medicine and Public Health of Vanderbilt University School of Medicine.

No anthelmintic treatment was administered after the initial survey. In February, 1931, a reexamination was made of the thirty-six children who were still in the institution and who had previously been found to have eggs of intestinal parasites in the feces. The accompanying table shows the results of the two examinations.

It will be seen from this table that twenty-two of the thirty-six children were found to have ova of Ascaris lumbricoides on the first examination. The technic of examination used throughout the entire study was the Stoll method of egg counting by which both the incidence and the intensity of infestation can be determined. In the children who had arcaris infestation, the worm burden varied from 400 to 272,800 eggs per gram of feces, with an average of 29,000. On the reexamination of this group of children in February, 1931, fourteen months after the initial examination, eggs of Ascaris lumbricoides could not be demonstrated in the feces of any of them, despite the omission of anthelmintic treatment. This finding indicates that under proper sanitary conditions, when the opportunity for reinfestation is eliminated, Ascaris infestation was lost in from twelve to fifteen months.

Examination and Reexamination for Intestinal Parasites in Thirty-Six Children

	Eggs per Gram of Feces							
	First Examination Nov., Dec., 1929, and Jan., 1930				Second Examination Feb., 1931			
Case Number	Ascaris lumbricoides	Trichuris trichiura	Hookworm	Hymenolepis nana*	Ascaris lumbricoides	Trichuris trichiura	Hookworm	Hymenolepis nana*
1	0	0	0	+	0	0	0	0
2	0	1,200	0	0	0	0	0	0
3	400	1,200	0	+	0	200	0	0
4	7,600	0	0	0	0	0	0	0
5	17,600	1,200	0	0	0	0	0	0
6	4,000	0	0	0	0	0	0	0
7	2,400	0	0	0	0	0	0	0
8	800	0	0	0	0	0	0	0
9	23,200	800	0	0	0	0	0	0
10	0	0	7,600	0	0	0	0	0
11	25,000	0	0	0	0	0	0	0
12	0	0	0	+	0	0	0	0
13	0	1,200	3,600	0	0	600	2,400	0
14	0	2,400	2,400	+	0	0	3,200	0
15	0	0	0	+	0	0	0	0
16	0	0	0	+	0	0	0	+
17	10,200	300	900	+	0	0	0	0
18	272,800	0	0	0	0	0	0	0
19	22,800	2,800	0	0	0	0	0	0
20	40,800	2,400	0	0	0	0	0	0
21	0	7,200	0	+	0	4,400	0	+
22	28,800	0	0	0	0	0	0	0
23	17,400	1,800	0	0	0	0	0	0
24	78,400	0	0	+	0	0	0	0
25	23,200	800	0	0	0	0	0	0
26	0	0	0	+	0	0	0	0
27	2,000	0	800	0	0	0	0	0
28	0	0	0	+	0	0	0	0
29	0	0	0	+	0	0	0	0
30	5,100	1,200	0	0	0	0	0	0
31	0	0	9,600	0	0	0	0	0
32	4,400	0	0	0	0	0	0	0
33	65,200	2,400	0	0	0	0	0	0
34	0	0	3,200	0	0	0	1,600	0
35	6,400	0	0	0	0	0	0	0
36	1,800	0	0	0	0	0	0	0

* Specimen contained eggs of Hymenolepis nana. It does not indicate intensity of infestation.

Otto[1] showed that treatment of ascaris infestation without sanitation is not effective in control of ascaris lumbricoides and he stated that the use of proper methods of disposal of feces in any community would reduce the worm burden of infested people without the use of vermifuges. He found, following treatment for ascaris infestation in a group of individuals of all ages in Virginia, that about one year later the intensity of infestation had returned to the pretreatment level. The results reported in this paper confirm Otto's suggestion and show that it is possible to control ascaris infestation by the proper disposal of human excreta without the use of anthelmintics.

It is of interest to note the decrease in the incidence of Trichuris, hookworm and Hymenolepis nana in these individuals during this period. The incidence of Hymenolepis nana decreased 83.4 per cent while Trichuris showed the next greatest decrease, 75.6 per cent, and hookworm showed only a decrease of 59 per cent. From the table it is evident, therefore, that under the conditions mentioned there will take place a decrease in these four intestinal parasites without the use of vermifuges. The loss of worms occurs most rapidly in the case of Ascaris, somewhat more slowly in the case of Hymenolepis nana and Trichuris and most slowly in the case of hookworm.

CONCLUSIONS

The results obtained from this study show that under environmental conditions which are not suitable for the transmission of intestinal parasites the worm burden of infested individuals is markedly reduced without the use of anthelmintics. In this group of patients who did not receive treatment over a period of fifteen months a reduction in incidence of 100 per cent occurred in the cases of Ascaris, 83.4 per cent in the cases of Hemenolepis nana, 75.6 per cent in the cases of Trichuris and 59 per cent in the cases of hookworm infestation. This study shows that proper methods of disposal of human feces are more effective in the control of the common human intestinal parasites than the use of anthelmintics alone.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following reports. W. A. Puckner, Secretary.

NAUSEATIN I AND NAUSEATIN II NOT ACCEPTABLE FOR N. N. R.

Nauseatin I and Nauseatin II are mixtures recommended for simultaneous administration by means of an atomizer with compressed air or oxygen as a "causal remedy against sea & air-sickness, railway sickness, hyperemesis gravidarum, all cases of central vomiting." The formulas for these mixtures are stated to have been devised by Franz Dammert, M.D., Munich, Germany; they are manufactured by Krause Medico Gesellschaft m.b.H., Munich, Germany.

No statement of the composition of Nauseatin I and Nauseatin II is contained on the label of these preparations; nor is such a statement supplied in the circular that accompanies the package. In the information sent to the Council, Nauseatin I is stated to contain "The total glycosides of Belladonna 2 gr. containing atropin 40 mgr., containing hyosciamin 20 mgr.," "Liquor Uzara 2 gr. containing the total glycosides (species Comphocarpus) of an african Asclepiadacea," "Papaverin 2.5 gr.," "Scopolamine hydrobromic. 0.05 gr.," some peppermint oil as a flavor, glycerin as a vehicle, dissolved in distilled water to make 100 cc. Nauseatin II is stated to contain "Suprarenin bitartaric. 0.08 gr.," "Extract of the Pituitary gland 60 ccm. standardised on fresh gland 1 ccm. = 15 Vögtlin E. = 0.105 gr. fresh gland," calcium chloride 2.5 gr., some peppermint oil as a flavoring agent, glycerin as a vehicle in distilled water sufficient to make 100 cc. (In these statements of composition "gr." is used as an abbreviation for gram.) It was stated that the process of manufacture "is the usual and regular, to make an aqueous extract of the ingredients": since there is no "usual and regular" process for the unofficial "Liquor Uzara" the statement of composition is unsatisfactory so far as this ingredient is concerned.

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[1] Otto, G. F.: Ascaris Lumbricoides: Treatment, Loss of Worms and Reinfestation, J. A. M. A. **95**: 194-196 (July 19) 1930.

According to the advertising which accompanies the packages, the "synthesis" of these preparations "is such, that they causally embrace the whole genesis of sea and air-sickness." "Nauseatin I contains spasmolytical, analeptical and excitation-reducing drugs. Nauseatin II contains extracts derived from the hormona of the suprarenal glands and the infundibular lobe *with addition of calcium.*"

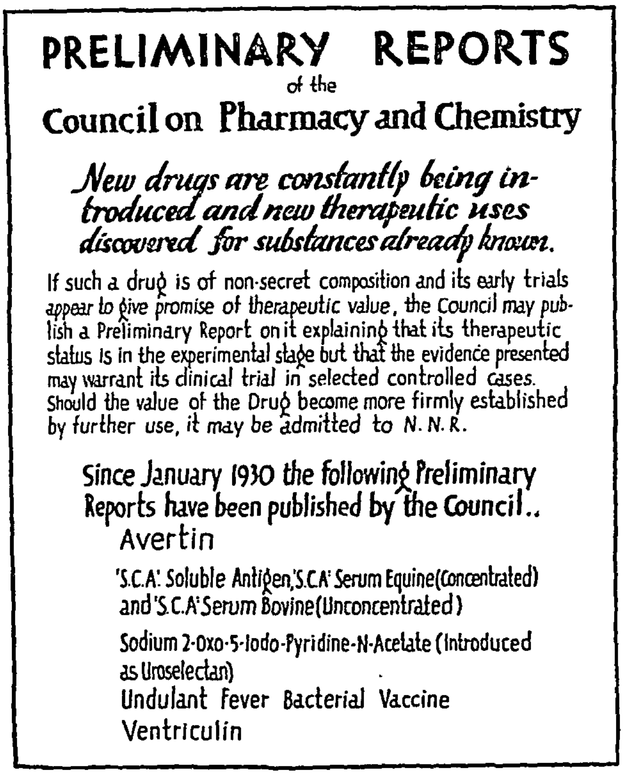
The composition of these mixtures is typical of the complex "shotgun" preparations that were in vogue many years ago—it even includes the proverbial "joker" or ingredient of doubtful composition and potency in the "Liquor Uzara." While, as with all "sea sick" remedies, the psychic effect of the inhalation of two medicaments through one atomizer and under compressed oxygen will no doubt result in many a "cure," it does not require an extensive knowledge of drugs to appreciate that there is no scientific basis for these mixtures.

Before going further into this phase of the discussion, it might be pointed out that it is practically impossible to judge of the amounts of certain of the constituents said to be present in the mixtures, on account of the indefiniteness of the statements concerning them. For example, what is meant by 2 grams of the total glucosides (?) of Belladonna containing 40 mg. of atropin and 20 mg. of hyoscyamine? Possibly 2 grams of Belladonna is meant and the total 60 mg. named represents 0.3% of the 2 grams. Nevertheless it is plainly stated to contain 2 *grams of the total glucosides* (?) of Belladonna.

Coming now to a consideration of the preparations themselves, a mere statement of the constituents which the patient would receive when he inhaled the vaporized mixture of No. 1 and No. 2 is sufficient to indicate the typical antiquated shotgun character of the remedy. The patient, aside from the oxygen and the psychic stimulus, would get a depressive action from the hyoscyamine; a possible stimulant action from the atropine; an inhibition of secretions from the combined action of the belladonna alkaloids named; a relaxation of the nonstriated muscle due to these alkaloids, aided possibly by the papaverine and by the epinephrine; but this action would be neutralized more or less completely by the pituitary and possibly by the calcium. Just what other effects calcium administered by the lungs would have is rather hard to guess. If this is not enough for the sea-sick individual, Liquor Uzara is added "to equilibriate the vago-sympathetic nervous system." It would not be surprising if the system would need it about this time!

Enough has been said to indicate the unscientific character of the mixture and the practical impossibility of even guessing what the total effect of such a complex mixture is going to be when it is administered to the human patient.

Nauseatin I and Nauseatin II are unacceptable for New and Nonofficial Remedies because they are unscientific mixtures marketed with unwarranted claims and under nondescriptive, therapeutically suggestive names and without definite statements of composition on the labels or in the advertising.



PRELIMINARY REPORTS
of the
Council on Pharmacy and Chemistry

New drugs are constantly being introduced and new therapeutic uses discovered for substances already known.

If such a drug is of non-secret composition and its early trials appear to give promise of therapeutic value, the Council may publish a Preliminary Report on it explaining that its therapeutic status is in the experimental stage but that the evidence presented may warrant its clinical trial in selected controlled cases. Should the value of the Drug become more firmly established by further use, it may be admitted to N. N. R.

Since January 1930 the following Preliminary Reports have been published by the Council..

Avertin

'S.C.A.' Soluble Antigen, 'S.C.A.' Serum Equine (Concentrated) and 'S.C.A.' Serum Bovine (Unconcentrated)

Sodium 2-Oxo-5-Iodo-Pyridine-N-Acetate (Introduced as Uroselectan)

Undulant Fever Bacterial Vaccine

Ventriculin

A reduced reproduction of a type of poster that has been shown in the Council on Pharmacy and Chemistry exhibits at the last four Annual Sessions of the American Medical Association. Preliminary Reports of the Council are worth reading. Watch for them in The Journal. They are also published at the close of the year in the Annual Reports of the Council on Pharmacy and Chemistry.

ALQUA WATER, CALSO WATER, AND ALKA WATER NOT ACCEPTABLE FOR N. N. R.

Alqua Water (Shasta Water Co., San Francisco, Shasta Springs, and Los Angeles, Calif.) and Calso Water (The Calso Co., San Francisco and Los Angeles, Calif.) are advertised as waters of which the alkaline content has been increased by the addition of unspecified amounts of various salts. The "formula" of Alqua Water is stated to be "Calcium Chloride, Sodium Phosphate, Sodium Chloride, Sodium Bicarbonate with added Glacier Water from Shasta Springs." Calso Water is offered ". . . as containing an aqueous solution, Calcium, Sodium Bicarbonate, Sodium Phosphate, Sodium Chloride and Magnesium Oxide proportioned in keeping with a physiological relationship." The advertising of both waters recommend them for use in combating acidosis.

The apparently frank statement in the advertising circulars (*though not on the labels*) of the composition of these products is really *meaningless,* since no quantitative declaration is made, leaving the products in effect mere secret preparations. The dangers of such uninforming statements of composition and the likelihood of radical and arbitrary changes being made without notice are too well known to need discussion.

The circular for Alqua Water consists mainly of long quotations of passages from a contribution on acidosis by Dr. Woodyatt of Chicago, *in which are mentioned* most of the diseases and intoxications mentioned in ordinary textbooks. The claim is made that Alqua Water meets the requirement of "alkali and fluid." The information given in the advertising circular for Calso Water in the main conveys the well known facts and concepts regarding acid base balance, carrying, of course, the implication that the product is an effective agent for correcting conditions in which an alkaline agent is needed to correct this balance. In other advertising *the direct claim is made that* Calso Water "counteracts and prevents acidosis." There are a few specially objectionable statements in the Calso Water circular: *on page 3 there are* unproved assumptions calculated to stimulate the demand for the product, and an attempt to create erroneous impressions by ascribing clinical symptoms to slight variations in the composition of the blood; on page 4 the good therapeutic effects of the water are ascribed to calcium and magnesium (ions), which is an inconsistency with the claims for alkalinity. The circular is correct in stating that Calso Water is not a cure all or a specific for any disease: this product, as well as Alqua Water, can accomplish no more than a little sodium bicarbonate in water obtainable in any home at much less cost. In general, it may be stated that the therapeutic claims made for these products are unwarranted, since there is no evidence for the efficacy of such weakly alkaline preparations in acidosis, etc., and they are without demonstrated advantage over ordinary water containing a little bicarbonate of soda.

The label of Alka Water (Carl H. Schultz Co., Brooklyn, N. Y.) gives a nonquantitative statement of composition similar to those of Alqua Water and Calso-Water. However, in an advertising circular the following quantitative statement appears: "Lithium Bi-Carbonate, 20.00; Magnesium Bi-Carbonate, 06.00; Calcium Bi-Carbonate, 90.00; Potassium Bi-Carbonate, 70.00; Strontium Bi-Carbonate, 02.00; Sodium Iodide, 00.05; Sodium Phosphate, 70.00; Potassium Sulphate, 00.05; Sodium Bi-Carbonate, 586.00; Sodium Chloride, 82.00; Parts in 100,000, 926.55; Grains to U. S. gallon, 540.178." Under the caption "What it is and What it Does" the circular follows the specious old custom of the venders of shotgun preparations by listing the virtues of each of the components of this complex mixture, leaving the uncritical reader to the assumption that the product has the virtues of each of the constituents: for example, the statement concerning the lithium bicarbonate reads: "Lithium Bi-Carbonate—Is alkaline and owes its virtues to the fact that it unites readily with uric acid, forming the urate of lithia, a freely soluble compound which passes readily from the system. For this reason it finds its most important application in diseases characterized by the uric-acid diathesis, otherwise known as uricaemia, lithaemia, or lithiasis. It is notably useful in cases of uric-acid sand, gravel and calculi, and in gout and rheumatoid arthritis. It is also of value in phosphatic deposits in the appendix, and in concretions, tophi, etc." This is a revival of the old fallacy that the lithium salts are solvents for uric acid in the system. The claims for the "alkalizing" value of this mixture are as unwarranted and objectionable as those for Calso Water and Alqua Water.

The Council declared Alqua Water, Calso Water, and Alka Water unacceptable because they are irrational proprietary mixtures, marketed with unwarranted and misleading therapeutic claims.

Committee on Foods

The following products have been accepted as conforming to the rules of the Committee on Foods of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

MEAD'S DEXTRI-MALTOSE NO. 1

With Sodium Chloride 2%

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Essentially a mixture of maltose and dextrins with 2 per cent added sodium chloride.

Manufacture.—The manufacture is the same as that for Mead's Dextri-Maltose No. 2 with the exception of the addition of 2 per cent sodium chloride (U. S. P.) to the final dry product.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	4.1
Added sodium chloride	2.0
Ash (other than that from the added sodium chloride)	0.5
Fat (ether extract)	0.2
Protein (N × 6.25)	0.2
Reducing sugars expressed as maltose	51.0
Dextrins (by difference)	42.0

Calories.—3.75 per gram; 106.5 per ounce.

Claims of Manufacturer.—Mead's Dextri-Maltose No. 1 With Sodium Chloride 2% is recommended for use as a carbohydrate supplement in the general diet of infants and is especially adapted to meet the carbohydrate requirements of infants and invalids. It is used in milk modifications suitable for children or adult invalids.

MEAD'S DEXTRI-MALTOSE NO. 2

Salt Free

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Essentially a mixture of maltose and dextrins.

Manufacture.—An infusion of barley malt of known diastatic value is admixed with boiled starch and water; corn flour, potato, wheat, casaba or other starch may be used. The temperature of the mixture is carefully controlled to obtain a definite ratio of maltose to dextrins in the final product. The conversion is continued until tests indicate the absence of starch, at which time the mixture is brought to boiling to stop further diastatic action. The mixture is filtered under pressure through filter presses to remove insoluble cellulosic, fat and protein materials. The filtrate is concentrated in a "vacuum" evaporator, is decolorized by filtration through animal charcoal, dried, powdered and packed in tin containers.

All equipment is kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	4.1
Ash	0.5
Fat (ether extract)	0.2
Protein (N × 6.25)	0.2
Reducing sugars expressed as maltose	52.0
Dextrins (by difference)	43.0

(Dextrose is present in small percentage as shown by precipitation as osazone.)

Calories.—3.83 per gram; 108.8 per ounce.

Claims of Manufacturer.—Mead's Dextri-Maltose No. 2 is especially prepared for use as a carbohydrate supplement in general infant feeding and as a valuable ingredient in the diet of adult invalids; it is used where the addition of salt is not required. It is especially adapted to meet carbohydrate requirements in the diet of infants and invalids and is used in milk modifications suitable for children or adult invalids.

MEAD'S DEXTRI-MALTOSE NO. 3

With Potassium Bicarbonate 3%

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—Essentially a mixture of maltose and dextrins with 3 per cent added potassium bicarbonate.

Manufacture.—The manufacture is essentially the same as that for Mead's Dextri-Maltose No. 2 with the exception of the addition of 3 per cent potassium bicarbonate (U. S. P.) to the final product.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	4.1
Added potassium bicarbonate	3.0
Ash (other than that from the added potassium bicarbonate)	0.5
Fat (ether extract)	0.2
Protein (N × 6.25)	0.2
Reducing sugars expressed as maltose	51.0
Dextrins (by difference)	41.0

Calories.—3.71 per gram; 105.4 per ounce.

Claims of Manufacturer.—Mead's Dextri-Maltose No. 3 With Potassium Bicarbonate is recommended for use as a carbohydrate supplement in special infant diets and other special diet mixtures for meeting carbohydrate requirements. It is used in milk modifications suitable for children or adult invalids.

CROSBY'S BEST FLOUR

Manufacturer.—Associate companies of General Mills, Inc., Minneapolis.

Description.—A hard winter wheat patent flour designed for commercial bakers' use; packed in sacks.

Manufacture.—The manufacture is essentially the same as that for Gold Medal Flour "Kitchen-Tested" excepting that selected hard winter wheat is used. The milled flour is bleached and treated to improve the color and baking quality as described for Gold Medal Flour "Kitchen-Tested," although unbleached flour is furnished on request.

The flour is tested by the company's laboratory and experimental bake shop. The laboratory tests aid in controlling the mill operations; the experimental bake shop tests are to assure uniform baking results in commercial baking.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	13.0 –14.5
Ash	0.38– 0.42
Fat (direct ether extraction method)	0.8 – 1.2
Protein (N × 5.7)	10.5 –11.5
Crude fiber	0.3 – 0.5
Carbohydrates (by difference) other than crude fiber	75.0 –71.9

Calories.—3.49–3.44 per gram; 99.1–97.7 per ounce.

Claims of Manufacturer.—A good quality hard winter wheat patent flour designed to meet the requirements of the baking industry for an economical bread flour.

BORCHERDT'S MALT SUGAR

(Essentially Malt Sugar)

Manufacturer.—Borcherdt Malt Extract Company, Chicago.

Description.—The product is essentially maltose (87 per cent) obtained by conversion of starch by malt diastase; contains dextrins, proteins, mineral salts, and vitamins B and G.

Manufacture.—A mash of crushed barley malt and warm water is agitated; partially hydrolyzed starch in hot water is added at such a rate as to produce a definite temperature favorable for starch conversion in the mixture in a specified time. The temperature is slowly reduced to a definite point and maintained there for a specified time. Control tests of the conversion are made during this period. The solution is drawn off from the mash, filtered and evaporated in "vacuum" pans to a dry powder. The temperature during evaporation does not exceed 65 C. The final powder is tested for maltose and dextrin content by the standard "copper reduction" methods; and packed in cans.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	2.0
Ash	1.9
Fat (ether extract)	0.0
Protein (N × 6.25)	4.4
Reducing sugars, before inversion as maltose	87.0
Dextrins (by difference)	4.7

	per cent
Sodium (Na)	0.10
Potassium (K)	0.40
Calcium (Ca)	0.03
Magnesium (Mg.)	0.06
Iron (Fe)	0.001
Aluminum (Al)	0.01
Silicon (Si)	0.02
Chlorine (Cl)	0.01
Sulphur (S)	0.06
Phosphorus (P)	0.41
*p*H (10 per cent solution)	7.2

Calorics.—3.84 per gram; 109.1 per ounce.

Vitamins.—Five-tenths Gm. is slightly less potent in vitamins B and G than 0.3 Gm. of samples of dried yeast tested.

Claims of Manufacturer.—The product is recommended for infant feeding. It contains vitamins B and G in substantial quantities.

PABST-ETT (BRICK VARIETY)

A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals

Manufacturer.—Pabst Corporation, Milwaukee.

Description.—A blend of process brick and process American cheese containing disodium and trisodium phosphates as emulsifiers, salt and concentrated milk whey.

Manufacture.—The manufacture is essentially the same as that for Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals) excepting that a blend of process brick and process American cheese is added (THE JOURNAL, Oct. 27, 1931, p. 1227).

Chemical Composition (submitted by manufacturer).—

	(sample as is) per cent	(moisture free basis) per cent
Moisture	43.5	....
Ash	5.2	9.3
Salt in ash	1.8	3.2
Fat (ether extract)	24.0	42.5
Protein (N × 6.38)	19.5	34.6
Lactose (by difference)	7.8	13.6
Phosphorus (P)	0.31	0.54

Calorics.—3.25 per gram; 92.3 per ounce.

Vitamins.—The vitamin content is essentially that of Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals).

Claims of Manufacturer.—See this section for "Pabst-ett."

LAUB'S QUALITY BREAD

Manufacturer.—The Jacob Laub Baking Company, Cleveland, Ohio.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 70 per cent patent flour of Northwest wheat, water, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, dextrose, lard, sweetened condensed skimmed milk, oil and a partially hydrolyzed starch to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.6
Ash	1.8
Fat (ether extract)	2.9
Protein (N × 6.25)	9.1
Crude fiber	0.5
Carbohydrates (by difference) other than crude fiber	49.1

Calorics.—2.59 per gram; 73.6 per ounce.

Claims of Manufacturer.—A bread of good quality.

WHOLE WHEAT FLAKES—WHEATIES—WITH ALL THE BRAN

Deliciously Flavored with Sugar, Salt and Malt Syrup

Manufacturer.—Gold Medal Foods, Incorporated, a wholly owned subsidiary of General Mills, Inc., Minneapolis.

Description.—Toasted whole wheat flakes prepared from cooked wheat with added sucrose, salt and malt syrup.

Manufacture.—Selected wheat is cleaned of foreign materials by the usual procedure of wheat cleaning in flour milling, and is lightly "scoured" to remove the beard, dust and loose particles of bran but not any material proportion of the bran.

The clean wheat with definite quantities of sucrose, salt, malt syrup and water is cooked in revolving steam pressure cookers for about forty-five minutes. The cooked grain is air-dried, cooled and flaked between water-cooled steel rolls. Each wheat kernel forms an independent flake. The flaked wheat is toasted in gas-fired revolving drum ovens. The toasted flakes are cooled and automatically packed in cartons lined with wax-paper.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	1.5
Ash	4.5
Salt	3.0
Fat (ether extract)	1.2
Protein (N × 5.7)	12.5
Crude fiber	1.8
Carbohydrates (by difference) other than crude fiber	78.5

Calorics.—3.75 per gram; 106.5 per ounce.

Claims of Manufacturer.—A good quality cooked and toasted whole wheat flakes.

MERRELL-SOULE POWDERED LEMON JUICE AND CORN SYRUP

Manufacturer.—Borden Sales Company, Inc., New York.

Description.—A spray-dried mixture of lemon juice and corn syrup.

Manufacture.—California lemons are carefully scrubbed and rinsed and pressed by machine. The expressed juice is strained and then admixed with high quality corn syrup. The mixture is sprayed into a drying chamber containing hot air currents; the dry solids collect on the chamber floor. The powder is packed in drums or tin containers.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	2.6
Ash	1.0
Fat (ether extract)	0.0
Lemon oil	0.7
Protein (N × 6.25)	0.8
Reducing sugars, as invert	28.0
Dextrins (by difference)	55.4
Crude fiber	0.0
Titratable acidity as citric acid (anhydrous)	11.5

Calorics.—3.43 per gram; 97.4 per ounce.

Vitamins.—The vitamin C of the lemon juice is not materially impaired by the spray drying.

Claims of Manufacturer.—A good quality powdered lemon juice with corn syrup recommended for the preparation of lemon pies, beverages, and other lemon food preparations.

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SATURDAY, OCTOBER 31, 1931

METASTASES TO THE BONE FROM CANCER

Until a few years ago, information concerning the location of metastases from cancer was gained only by physical examination and necropsy. With the introduction of the roentgen ray, greater accuracy in studying the incidence of bony metastases in the skeleton became possible. Although some bones, such as the sternum and ribs, may not produce evidence of metastases in the roentgenogram, they can be demonstrated with the microscope. A combination of the two methods of study was followed by Copeland[1] in a report from Johns Hopkins University on 334 metastatic lesions of bone. He found among 757 deaths caused by the dissemination of mammary carcinoma that 11.8 per cent of the patients had lesions of the bone prior to death. The bones in which metastases most frequently were found in these carcinomas of the breast were the spine, pelvis, femur, skull, ribs and humerus. The metastases caused pain of a rheumatic character, which in the beginning might be mild or so excruciating as to require large doses of morphine. Patients showed great variability in their response to invasion by the tumor, the disease progressing rapidly in some with little bodily reaction, while others improved under treatment and lived useful lives for some time. The blood picture was normal in the early stage of these metastases but eventually showed a secondary type of anemia as the disease progressed. There were two types of metastatic lesions shown by the x-rays, the more common a bone destructive lesion, the other a bone forming process. The latter type occurred in outspoken fashion only twice in this series of cancers of the breast. Such formation of new bone, Bloodgood[2] has indicated, may be a point in the differential diagnosis of multiple tumors of the bone. If this new formation occurs as a mottling area within an area of destruction in the bone, a metastatic process as opposed to the punched-out areas of destruction seen in multiple myeloma is probably present. When the two conditions cannot be differentiated in the roentgenogram, the presence of Bence-Jones bodies in the urine favors the diagnosis of multiple myeloma. These metastases were most often multiple. A single focus occurred in only one fourth of the cases and the majority of them were in the vertebrae or femur. From the point of view of treatment, Copeland divides his patients having mammary cancers with bone metastasis into three groups: (1) those who had a radical amputation of the breast, (2) those who had only simple amputation of the breast and (3) those on whom no operation was performed. It was found that patients having carcinoma of the breast with metastases into the bone, when treated by the roentgen ray, may expect relief from pain and often a few months of comparatively comfortable living. However, resection of the affected part of the bone, in some cases, may be indicated for the relief of pain.

While hypernephroma is said to have a predilection for the bones, Copeland found it difficult to form a definite idea from the literature as to the incidence of bone involvement. In his study of sixty-three cases of hypernephroma, there were twenty-two instances, or 34.9 per cent, of metastases to the bones in the following order of frequency: humerus, spine, femur, pelvis, ribs, bones of the foot, skull and sternum. Little evidence of any attempt at the formation of new bone within the area of destruction was found in cases of hypernephroma. The microscopic picture was typical of hypernephroma of the renal type. The tumor in the bone had a characteristic brownish yellow color, flecked with red. Irradiation alone offers as much for the prolongation of life in hypernephromas with metastases to the bone as does surgical intervention alone or surgery combined with irradiation.

Among the 1,020 cases of cancer of the prostate were 134 instances of metastasis to the bone. Here, osseous lesions were most frequent in the pelvic bones, vertebrae and femur. Roentgenograms of the invaded bones showed the lesion to be of an osteoplastic nature with a marked increase in the formation of bone. Reaction of the bone to prostatic carcinoma is the reverse of that usually seen in other metastatic lesions, except where osteoclastic invasion by the tumor has been treated by the x-rays. Malignant disease of the testicle with metastases to the bone occurred once among thirteen cases of carcinoma and once among forty-two cases of sarcoma of the testicle. Among eighty-six cases of carcinoma of the uterus, 5.6 per cent showed metastases to the bone, in two of which the primary lesion was in the cervix. Roentgenograms of these metastases showed destruction of bone with little tendency to formation of new bone. Among sixty-nine cases of ovarian malignant disease were two instances with metastases to the bone. Among 537 patients with carcinoma of the stomach, registered in the laboratory, seven were subsequently found to have metastases to the bone, a percentage of 1.03. An interesting feature of the blood in one of these cases was a change of a pseudopernicious type, whereas the ordinary type of secondary anemia is usually seen. Of twenty-four patients with carcinoma of the lung, 16 per cent had metastases to a variety of bones, including the lumbar spine, pelvis, ribs or skull. Roentgenograms in these cases showed destruction of the bone with little formation of new bone. Among 169 cases of melanoma, 1.07 per cent showed metastasis to the bone. There was analyzed an additional group of thirty-one cases with metastasis to the bone, in which it was not possible to determine the primary focus.

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[1] Copeland, M. M.: Skeletal Metastases Arising from Carcinoma and from Sarcoma, Arch. Surg. **25:** 581 (Oct.) 1931.

[2] Bloodgood, J. C.: Bone Tumors, Benign and Malignant: A Brief Summary of the Salient Features Based upon the Study of Some Three Hundred and Seventy Cases, Am. J. Surg. **34:** 229 (Sept.) 1920.

Since the time of Virchow, various attempts have been made to explain secondary metastatic lesions. Von Recklinghausen[3] held that such tumors spread through the blood stream into the bone marrow. Handley,[4] who in 1906 presented the theory that cancer is disseminated by permeation of the lymphatics, believed that the majority of cases occurred by the extension of the tumor cells through the deep fascial lymphatics. There have been many advocates of both theories. Copeland in this review found evidence indicating that both an embolic and a lymphatic mode of involvement occurred. In individual cases the mode of metastasis will probably be determined by the duration and character of the primary tumor and the method of treatment.

CALCIUM IN GROWTH AND DEVELOPMENT

It is now about ninety years since Liebig enunciated the general principle of his so-called law of the minimum. This principle has proved of great service in the guidance of scientific research and in the practical feeding of growing children and of farm animals, and in the fertilization of crops. Yet we are still in process of learning just how this broad principle is to be construed. Most commonly it is taken to mean that, among the substances nutritionally essential to growth, that one which is furnished to the organism in minimum amount (relative to the need for growth at a normal rate) will thereby determine the rate of growth, the organism growing only to the extent that it can increase its size and at the same time maintain the normal composition of its kind.

This was strikingly illustrated in the classic researches of Osborne and Mendel on feeding experiments with isolated proteins with or without supplementation with individual amino-acids. Young animals on diets good in other respects but whose protein moiety was poor in the amino-acid lysine were restricted in growth in apparently direct relation to the paucity of the lysine supplied. Instead of growing up with lysine-poor bodies, they simply stopped growing or grew only at a rate at which they could make new body material of normal lysine content.

But when the same investigators fed diets good in other respects but poor in calcium, the effect on growth was not quite so uniform. Sooner or later growth was inhibited by the marked shortages of calcium which these experiments imposed; but the individual animals showed considerable variation as to the promptness of this response, some making considerable growth on food of such low calcium content that these animals must necessarily have been growing up calcium poor. The earlier experiments of Aron and Sebauer with dogs, and the later work of Sherman and MacLeod with rats, also showed that in a considerable proportion of cases growth continues on a calcium-poor diet to an extent sufficient to result in bodies of marked subnormal calcium content.

Smith's[1] recent review of the phenomena of retarded growth and a simultaneous paper by Sherman and Booher[2] have emphasized anew the important fact that there is need for discrimination in predicting the effects of different nutritional shortages on growth, and equally that we should be on our guard against a false sense of security in assuming that the absence of any appearance of stunting necessarily means excellence of nutritional condition throughout. Smith cites the evidence afforded by experiments with varied types of nutritional shortages. From this it appears that the investigator must discriminate between different categories of retarded development as resulting, for instance, from low calory, low lysine or low ash dietaries, respectively. Sherman and Booher present the results of experiments on the calcium content of the body as influenced by that of the food. In these experiments it was found that with dietaries good in other respects and containing more calcium than in the experiments of Osborne and Mendel, but not the full liberal amount required for maximal calcium retention in the growing body, growth in height and weight may (and usually does) occur at a normal rate. There may, in fact, be every physical appearance of excellent nutrition, while the body is nevertheless growing up calcium poor, as shown in these experiments by actual analyses of the experimental animals. When these results are considered in relation to the data already on record regarding the relation of calcium intake to rate of calcium retention in growing children, it becomes highly probable (to speak conservatively) that an unduly large proportion of children who appear, even on careful physical examination, to be making normal growth and development are in reality in a more or less calcium-poor condition simply because their calcium intakes are not high enough to support an optimal rate of calcium retention. Fully normal development during growth demands a steady increase not only in the amount but also in the percentage of body calcium. The assurance of positive calcium balances is not sufficient. The body may be steadily storing calcium; but unless the rate of increase of body calcium is greater than the rate of increase of body weight, the growing body is being retarded in its normal development. In an extended experience with laboratory animals it has been found that the liberal calcium intakes which favor development in this respect result also in what McCollum and Simmonds have aptly called "the preservation of the characteristics of youth." They tend both to expedite development and to defer senility; and in all probability this is equally true in human nutrition. The fact that a calcium-poor condition of the body does not show itself in any obvious way—as, for example, an iron-poor condition shows itself in a tendency toward anemia—and the further fact that the deleterious effects of such a condition while not clear cut are probably far reaching, make it seem all the more scientifically logical and practically important that the child should be given the benefit of any doubt in connection with this aspect of his nutritional need. It seems desirable that the dietary of the growing child shall provide liberally for those phases of his development which depend on a relatively high rate of calcium retention.

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[3] von Recklinghausen, F.: Die Fibrose oder deformierende Ostitis die Osteomalacie und die osteoplastiche Carcinose in ihren gegenseitigen Beziehungen, Festschr. der Assistenten für Virchow, 1891, p. 17.

[4] Handley, W. S.: Cancer of the Breast and Its Operative Treatment, London, John Murray, 1906, pp. 1-176.

[1] Smith, A. H.: J. Nutrition 4:427 (Sept.) 1931.

[2] Sherman, H. C., and Booher, L. E.: J. Biol. Chem. 93:93 (Sept.) 1931.

Current Comment

BENDIEN'S METHOD OF CANCER DIAGNOSIS

The vast importance of the early diagnosis of cancer stimulates investigators in almost every country to seek a reliable method. Hence, premature publication of encouraging results is not infrequent. One of the latest methods for the diagnosis of cancer to be found unreliable, at least in its present form, is that of Bendien, a Dutch physician, who claimed that he was able to diagnose cancer on examination of the patient's blood serum by means of the ultraviolet spectrophotometer. Bendien's report was practically ignored in his own country, and his book, "Spezifische Veränderung des Blutserums," brought forth unsympathetic reviews. However, when Bendien visited London, in August, he received a great deal of publicity in the lay press. Indeed, the British Empire Cancer Campaign, although realizing that time must elapse before the real value could be determined, concluded, after a series of tests on normal and cancerous serum, that the test marked a definite advance in cancer research. In October, however, C. Gordon Watson, chairman of the Investigation Committee of the British Empire Cancer Campaign, informed the *Lancet* that, although preliminary results with the test were encouraging, the committee had made subsequent inquiries which failed to jusify the early promise and had come to the conclusion that the Bendien method of diagnosis for cancer cannot at present be accepted as reliable. Furthermore, after an investigation, the Institute for Preventive Medicine at Leiden came to a similar conclusion. These announcements from authentic sources are sufficient to forestall extensive efforts to confirm or further disprove Dr. Bendien's method. This failure, however, should not discourage others from seeking to discover a dependable method for the early diagnosis of cancer.

PROGNOSIS OF ACUTE ENDOCARDITIS IN CHILDHOOD

Some clinicians believe that children never recover from rheumatic heart disease and that Aschoff bodies, which are considered pathognomonic of rheumatic heart disease, never disappear. As these views did not accord with his clinical experience, Morse[1] studied a hundred children seen during their first attack of acute endocarditis, from ten to thirty years ago. Rheumatism, alone or in combination with chorea or tonsillitis, was the apparent cause in 57 per cent and tonsillitis and other infections of the upper respiratory tract in 22 per cent of the cases. Thirty-six of the hundred patients are dead; thirty-seven are well and have normal hearts; eighteen show some physical signs of chronic valvular disease; three are cardiac invalids; in six, the author is unable to determine that their hearts show anything of significance. All of the hundred children when first seen had a mitral systolic murmur; four of those who died had a mitral diastolic murmur when first seen and one an aortic diastolic murmur. One of the three cardiac invalids had a mitral diastolic and another a double aortic murmur; two of those who are now well and have normal hearts had a mitral diastolic murmur and one an aortic systolic murmur, when first seen. While these are slight differences, it would seem that murmurs other than mitral systolic, when heard early, point to some extent to a more serious involvement of the heart. Of the children who did not recover, 33 per cent died within four weeks and 66 per cent within four months of the onset of the disease; two thirds of the remainder died within five years. Of the children who are alive and well, with slightly damaged hearts, 40 per cent had repeated attacks of rheumatism, chorea and sore throat. Of those who are now alive with normal hearts, only 11 per cent had repeated attacks. Only one of the eighteen patients who are alive with slightly damaged hearts has a diastolic mitral murmur. Thus it appears that, even when complete recovery does not take place, the lesions at the mitral orifice are not necessarily progressive and deforming, as is now commonly believed. The prognosis of acute endocarditis in childhood is greatly influenced by the kind of care that the patient receives. The better the care, the better the prognosis. Many of the children whose care was designated as "perfect" or "very good" were kept in bed for months and then carried up and down stairs for months longer, and their mode of living was carefully controlled for years. Among those allowed to exercise as they pleased, the percentage who died within the first four months was high. The results apparently depended more on the care the children received than on any other single factor. The large number of complete recoveries and the relatively small number of deaths in this series are striking. Much remains to be learned about rheumatism. It seems, however, that complete recovery from acute endocarditis in children may occur even after repeated attacks of rheumatism.

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[1] Morse, J. L.: The Prognosis of Acute Endocarditis in Childhood: An Analysis of One Hundred Cases, Am. J. Dis. Child. 42:735 (Oct., part 1) 1931.

THE REVOLT OF THE BIOCHEMIST

In a recent address, Dr. Phoebus A. Levene[1] called attention to the return of belief in nonchemical agencies effective in biologic functions in a way analogous to the vital forces without which the distinctive manifestations of life cannot be developed. There are scientists still alive who can recall the revolt, in the last century, against the long accepted doctrine of organic vital forces. To the chemist, in particular, such accomplishments as the synthesis of urea in the laboratory by Wöhler in 1828 and numerous subsequent demonstrations of the ability to produce artificially substances that were supposed to be restricted in origin to subtle processes of life offered a challenge against vitalistic hypotheses. Levene states that as early as 1860 the chemist Berthelot insisted that "the objective of our science is to banish 'Life' from the theories of organic chemistry." Although a century ago this subject dealt with the chemistry of organic life and, in a sense, every chemist was a biochemist, in more recent times synthetic organic chemistry became the chief concern of investigators. During this period the mechanistic conception of life came into prominence. Life was to be explained without recourse to other principles than those involved in physics and chemistry, due recognition being made of the present limitation of our knowledge of these sciences. But the mysteries of living matter have not yet been interpreted by simple means. The impatience with the slowness of progress, the seeming impenetrability of some of life's secrets, are bringing the mechanistic philosophy into disrepute; and, as Levene has insisted, a "neovitalism" is acquiring modern devotees. However, Spoehr[2] asserts that, backed by a century of experience in carbon compounds, the organic chemist is again turning to the chemistry of the living organism. And Levene has championed anew the hope that life shall not remain forever a word without an accurate definition. Reviewing the truly remarkable contributions of the past few decades to the domain of biochemistry, he insists that, despite the seemingly slow advance, step by step, one mystery of life after another is being revealed. As Levene concludes:

> Whether the human mind will ever attain complete and absolute knowledge of and complete mastery of life is not essential. It is certain, however, that the revolt of the biochemist against the idea of a restriction to human curiosity will continue. Biochemistry will continue to function as if all knowledge, even that of life, were accessible to human understanding. The past has taught that the solution of one problem always opens up a new one. New discoveries in physics, in mathematics, in theoretical chemistry furnish new tools to biochemistry, new tools for the solution of old problems and for the creation of new ones. So long as life continues, the human mind will create mysteries and biochemistry will play a part in their solution.

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[1] Levene, P. A.: The Revolt of the Biochemist, Science **74**: 23 (July 10) 1931; Chem. Bull., June, 1931.

[2] Spoehr, H. A.: Science **70**: 462 (Nov. 15) 1929.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 10:30 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 2. Superfluous Hair and Its Treatment.
November 7. Tonsils — In and Out.

Five Minute Health Talks may be heard over the Columbia Broadcasting System on Monday and Saturday from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

November 2. An Ounce of Prevention.
November 7. Impetigo.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Charles P. L. Mathe, San Francisco, president of the San Francisco County Medical Society, was recently elected a chevalier of the Legion of Honor of France.——Dr. Percival Dolman, San Francisco, has been appointed a member of the board of medical examiners, succeeding Dr. William R. Molony, Los Angeles, it is reported.

Medical Certificates Lost.—Dr. William Wallace Behlow, lieutenant commander, medical corps, U. S. Navy, reported to the California State Board of Medical Examiners, October 13, that the following documents issued in his name had disappeared: medical diploma, Harvard University, dated June 20, 1912; intern certificate, Boston City Hospital, 1914, and California certificate to practice as a physician and surgeon, number A-01890, issued July 18, 1914.

Gifts to University of California.—The University of California reports that the following gifts, among others, were recently presented to the university: $5,000 by the Carnegie Corporation of New York for the research of Edward C. Tolman, Ph.D., in psychology; $1,500 by W. H. Crocker for pediatric research by Dr. William P. Lucas in the medical school; $675 by Eli Lilly and Company, Indianapolis, for research in anatomy and pharmacology; $500 by the National Research Council for the work of Bennet M. Allen, Ph.D., on thyroid glands at the University of California at Los Angeles, and $600 by E. Charles Fleischner Endowment Fund, San Francisco, for its fellowship in the communicable diseases of childhood.

Society News.—Dr. Leroy Brooks, San Francisco, addressed the Contra Costa County Medical Society, Richmond, September 15, on special aspects of surgery in children.——Dr. Edgar L. Gilcreest, San Francisco, addressed the Santa Barbara County Medical Society, September 14, on "Partial and Complete Rupture of Muscles, More Especially of the Biceps Flexor Cubiti," and Dr. Philip C. Means, Santa Barbara, spoke on "Arguments Against State Medicine."——Dr. Langley Porter, San Francisco, addressed a recent meeting of the Santa Cruz County Medical Society on "Abdominal Conditions in Childhood."——Dr. Mark L. Emerson, Oakland, among others, addressed the Alameda County Medical Association, October 19, on "Mosquito Abatement" with motion pictures and slides.——Karl F. Meyer, Ph.D., San Francisco, addressed the San Diego Academy of Medicine, October 27-28, on "Food Poisoning — Causes and Prevention." Dr. Albert Kuntz, St. Louis, will speak before the academy, November 12, on "Anatomy and Physiology of the Sympathetic Nervous System," and Dr. Clifford G. Grulee, Chicago, November 13, on "Diagnosis and Treatment of Intracranial Injury and Hemorrhage of the New-Born."

COLORADO

Society News.—At the meeting of the Medical Society of the City and County of Denver, October 20, Dr. Harry L. Baum spoke on "Relation of Allergic Nasal and Sinus Disease to Asthma"; Dr. John R. Evans, "Trichomonas Vaginitis," and Dr. George M. Blickensderfer presented a case of psychoneurotic vomiting.

Dr. Jackson Honored.—A portrait of Dr. Edward Jackson was unveiled and presented to the Medical Society of the City and County of Denver at its meeting, October 6. Dr. Robert Levy made the presentation of the portrait, which was a gift of Dr. Jackson's friends, and Dr. Samuel B. Childs gave the speech of acceptance. Dr. John W. Amesse was the toastmaster. The scientific paper of the evening was presented by Dr. Seymour D. Van Meter on goiter. Among those present at the meeting were Dr. Henry Sewall, Dr. Hubert Work, William W. Grant, Jr., Denver attorney, and J. I. McClymont, the artist who painted the portrait. Dr. Jackson, who has lived in Denver since 1898, served as professor of ophthalmology at the University of Colorado College of Medicine from 1905 to 1921, and in 1925 was president of the Colorado Commission for the Blind.

DISTRICT OF COLUMBIA

Personal.—Dr. Ray Lyman Wilbur, secretary of the interior, Washington, received the honorary degree of doctor of laws at the annual convocation of the University of the State of New York, October 15.——Lieut. Comdr. Franklin F. Murdoch, acting executive officer of the Naval Medical School, has been appointed professor of tropical medicine at George Washington University School of Medicine.

Medical Lectures for the Public.—The Medical Society of the District of Columbia has arranged to give a series of free lectures in the interest of public health education, Sunday afternoons, through the fall and winter months. Dr. James P. Leake, U. S. Public Health Service, opened the series, October 25, with a talk on infantile paralysis. Other lectures to be given will include a talk on mental health, November 8, by Dr. William A. White, and one on physical fitness at 50, December 6, by Dr. Wallace M. Yater. A symposium entitled "When Winter Comes" will feature the meeting, November 22; the speakers will be Drs. Henry C. Macatee, Margaret M. Nicholson and James A. Flynn.

ILLINOIS

Society News.—Dr. James H. Hutton, Chicago, addressed the La Salle County Medical Society, October 27, on "Recent Advances in Endocrinology."——The Stephenson County Medical Society was addressed, October 15, by Drs. Emmet B. Bay, Chicago, on "Cardiographic Tracings"; Bayard T. Horton, Rochester, Minn., "Buerger's Disease"; William T. Coughlin, St. Louis, "Brain Tumors."——Dr. Michael Goldenburg, Chicago, addressed the Peoria City Medical Society, October 20, on "Diseases of the Eye Encountered in General Practice."

Memorial Tablet to Army Surgeons.—The memory of two army surgeons, Drs. John Gale and Richard M. Coleman, was honored at the dedication of a tablet on the Rock Island Arsenal grounds by the Rock Island County Medical Society, October 20. These men served in the U. S. Army when Fort Armstrong was one of the military centers of the West. The tablet is said to be one of the few in Illinois marking the graves of physicians, and the only one memorializing the heroic work of army surgeons. Dr. Gale died in 1830. Dr. Coleman died in 1832 of Asiatic cholera. Dr. William H. Myers, Coal City, president of the county medical society, unveiled the tablet, and Col. David M. King, commanding officer, Rock Island Arsenal, gave the acceptance speech. Dr. Joseph De Silva was toastmaster at the dinner program. Mr. John H. Hauberg of the Illinois Historical Society spoke on "U. S. Army Surgeons at Fort Armstrong," and Dr. Irving S. Cutter, dean, Northwestern University Medical School, Chicago, spoke on "Drs. John Gale and Richard Coleman."

Chicago

Dr. Cole Will Deliver Pasteur Lecture.—The twelfth Pasteur Lecture of the Institute of Medicine of Chicago will be given, November 27, at the City Club by Dr. Rufus I. Cole of the Rockefeller Institute for Medical Research, New York. Dr. Cole will speak on "The Nature of Pneumonia."

Course in Oxygen Therapy.—The Michael Reese Hospital will conduct a course on oxygen therapy, November 17-20. There will be lectures, discussion and demonstration of the principles and application of oxygen therapy, the use of carbon dioxide-oxygen mixtures in various conditions and the important types of oxygen therapy and resuscitation apparatus.

Society News.—The Chicago Surgical Society will hold a clinical meeting, November 6, at Presbyterian Hospital; the speakers will be Drs. Hillier L. Baker on "Reduction of Fracture Dislocation of the Epiphysis"; Edmund Andrews, "Etiology of Gallstones"; John D. Ellis, "Histology of Electrosurgical Wounds," and James T. Case, "Sarcoma of the Stomach."——The Chicago Pediatric Society was addressed by Dr. Silber C. Peacock (inaugural thesis) and Marie Werner and Charlotte Colwell on "A Scarlet Fever Survey of the Personnel of a Children's Hospital, Including Comparative Studies of Special Bacteriological and Serological Methods"; Drs. Maurice L. Blatt and Maurice L. Dale spoke on "Scarlet Fever Control," and Dr. John A. Bigler, Highland Park, "Effect of Tonsillectomy and Adenoidectomy on the Schick Reaction."——At a joint meeting of the Chicago Medical Society and the Central Association of Obstetricians and Gynecologists, October 28, in the Medical and Dental Arts Building, the program comprised papers by Drs. Fred L. Adair on "The White House Conference—General Facts and Its Activities"; Palmer Findley, Omaha, and William C. Danforth, Evanston, Ill., "Maternal Mortality"; Percy W. Toombs, Memphis, Tenn., and Frederick H. Falls, Chicago, "The Midwife Problem," and Jennings C. Litzenberg, Minneapolis, and Everett D. Plass, Iowa City, "Medical Education and Its Relation to the White House Conference."——At the fifty-fourth annual meeting of the Chicago Gynecological Society, October 16, Fay-Cooper Cole, Ph.D., spoke on "Ethnological Status of Woman," and Dr. Morris Fishbein, "Two Famous Women of the Nineteenth Century."

INDIANA

State Medical Election.—Dr. Franklin S. Crockett, La Fayette, was installed as president of the Indiana State Medical Association at its annual meeting in Indianapolis recently. Dr. Joseph H. Weinstein, Terre Haute, was chosen president-elect. Dr. Arthur F. Weyerbacher, Indianapolis, was elected treasurer to succeed Dr. William A. Doeppers, who retired from office with a certificate of merit for seven years' service. Mr. Thomas A. Hendricks, Indianapolis, was reelected executive secretary of the association. The next annual session of the society will be held in Michigan City, Sept. 27-29, 1932.

Society News.—Dr. Marlow W. Manion, Indianapolis, addressed the Daviess-Martin County Medical Society, October 13, on "Acute Inflammations of the Ear."——The Tri-County Medical Society was addressed, October 7, at North Vernon, by Dr. Elmer Funkhouser, Indianapolis, on "Common Diseases of the Heart."——The Lawrence County Medical Society was addressed, October 7, among others, by Dr. Norman R. Byers, Bedford, on "Use of Rectal Ether in Obstetrics."——Dr. Thurman B. Rice, Indianapolis, addressed the La Porte County Medical Society, October 15, in La Porte on "Recent Advances in Bacteriology."——The Indianapolis Medical Society was addressed, October 20, by Drs. Theodore D. Rhodes on "Effect of Combined Simultaneous Arsenobenzene Therapy on the Serological Reaction," and Thomas B. Noble, Jr., "Cellulitis of the Hand."——Boyd S. Gardner, D.D.S., Rochester, Minn., addressed the St. Joseph County Medical Society, October 14, at South Bend on "Relation of Dental Infection to Systemic Disease."——The Gibson County Medical Society was addressed in Princeton, October 12, by Drs. Vance A. Funk, Vincennes, on "Pelvic Inflammatory Disease," and Robert G. Moore, Vincennes, "Observations in Clinical Diagnosis of Pulmonary Diseases."——At the meeting of the Floyd County Medical Society, October 9, in New Albany, Dr. Percy R. Pierson spoke on "Sequelae Following Injury in Automobile Accident."——Pneumonia was the general subject for discussion at the meeting of the Hendricks County Medical Society, October 16.——Dr. Frank A. Van Sandt, Bloomfield, addressed the Greene County Medical Society, October 15, on "Uterine Hemorrhage."——Dr. M. Herbert Barker, Chicago, addressed the Lake County Medical Society at Gary, October 8, on "Management of Chronic Nephritis."

IOWA

Society News.—The Carroll County Medical Society was addressed, October 2, by Drs. Joseph B. Thornell and Jack J. Treynor, Council Bluffs, on "Kidney Diseases in Children."——Drs. George De Tarnowsky, Chicago, among others, addressed the Southeastern Iowa Medical Society, October 1, on "Treatment of Backache"; John C. McKitterick, Burlington, "Pediatric Problems," and Clarence L. Heald, Sigourney, "Surgical Drainage of the Abdomen." Dr. George J. Pearson, Burlington, was elected president of the society, and Dr. Ira N. Crow, Fairfield, secretary.——The Linn County

Medical Society, Cedar Rapids, will be addressed, November 12, by Drs. Sanford R. Gifford, Chicago, and Frederick W. Bailey, Cedar Rapids, on "Ocular Ailments of the Elderly Patient" and "Stone in Tonsil," respectively.——Dr. Joe M. Krigsten, Sioux City, addressed the Woodbury County Medical Society, October 2, on "The Choice of an Anesthetic."

LOUISIANA

Chaille Oration Given by Dr. Sistrunk.—The sixth Stanford E. Chaille Memorial Oration of the Orleans Parish Medical Society was delivered at the Hutchinson Memorial, Tulane University of Louisiana School of Medicine, New Orleans, October 26, by Dr. Walter E. Sistrunk, Jr., Dallas, Texas. His subject was "Chronic Streptococcic Infections of the Female Genital Tract"; this was a clinical and experimental study of their effect on the health of women.

Society News.—Dr. Theodore J. Dimitry addressed the Orleans Parish Medical Society, New Orleans, October 12, on "Chaulmoogra Oil in Eye, Ear, Nose and Throat," and Dr. Sidney M. Copland spoke on "Clinical Concepts of Heart Failure."——Dr. Oscar W. Bethea, New Orleans, recently addressed the Lafourche Parish Medical Society on "Recent Advances in Diagnosis."——The Eighth District Medical Society, Alexandria, was addressed, October 7, by Drs. Daniel N. Silverman, New Orleans, on diseases of the gastro-intestinal tract and ulcers of the stomach; Willis C. Campbell, Memphis, ununited fractures, and Oscar W. Bethea, New Orleans, angina pectoris.

MASSACHUSETTS

Appointments at Tufts.—Dr. Edward K. Ellis, assistant professor of ophthalmology at Tufts College Medical School, has been appointed full professor and Dr. Allen Greenwood has been made professor emeritus of the department. Mario Garcia Banus, D.Sc., has been promoted to associate professor of physiology.

Personal.—Dr. Daniel J. Hurley, Boston, has been appointed a member of the state board of registration in medicine to succeed Frank M. Vaughan, D.O., whose term expired.——Dr. Frank H. Lahey, Boston, was elected president of the New England Surgical Society at its meeting in Portland, Maine, September 11, and Dr. Carl M. Robinson, Portland, vice president.

Society News.—The New England Heart Association plans to give a series of monthly discussions on cardiovascular disease; the first meeting, November 4, will be addressed by Sir Thomas Lewis, London, England, and Dr. James C. White on "Raynaud's Disease."——Dr. John Sproull, Haverhill, addressed the New England Roentgen Ray Society, October 16, on "Roentgen Study of the Great Vessels."

Mental Hygiene Meeting.—The Massachusetts Society for Mental Hygiene will hold its annual meeting, November 19, at the Twentieth Century Club, 3 Joy Street, Boston. Included on the program will be Dr. Clarence M. Hincks, director, National Committee for Mental Hygiene, New York, whose subject will be "Newer Trends in Mental Hygiene," and Dr. Douglas A. Thom, Boston, director, division of mental hygiene, state department of mental diseases, "Mental Hygiene and the Present-Day Depression."

Health at Lowell.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended October 17, indicate that the highest mortality rate (17.1) appears for Lowell and the rate for the group of cities as a whole, 10. The death rate for Lowell for the corresponding week of last year was 15.5 and for the group of cities, 10.9. The annual rate for the eighty-two cities was 12 for the forty-two weeks of 1931 as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

MICHIGAN

Appointments to State Medical Board.—Dr. J. Earl McIntyre, Lansing, was recently elected president of the Michigan State Board of Registration in Medicine; Dr. Jacob D. Brook, Grandville, vice president, and Dr. Nelson McLaughlin, Detroit, secretary. With the exception of the appointment of Dr. Claude R. Keyport, Grayling, as member to succeed Dr. William H. Marshall, Flint, resigned, all other members of the board were reappointed.

Society News.—Dr. Walter E. King, Detroit, addressed the St. Clair County Medical Society, Port Huron, October 6, on "Gas Gangrene Bacillus Infection in Civil Life."——Dr. Kellogg Speed, Chicago, addressed the Oakland County Medical Society, Pontiac, October 15, on "Unhappy Results in the Treatment of Fractures."——Newton W. Larkum of the state department of health, Lansing, addressed the Gratiot-Isabella-Clare County Medical Society, October 15, on bacteriophage.——Among others, Dr. Robert H. Denham, Grand Rapids, discussed "Management of Some Common Fractures" before the Ionia-Montcalm Counties Medical Society, October 13.——The October meeting of the Shiawassee County Medical Society was addressed by Dr. Clarence D. Barrett of the state department of health, Lansing, on infantile paralysis.——Dr. Charles L. Brown, Ann Arbor, addressed the Kalamazoo Academy of Medicine, October 20, on "Histamine in the Study of Gastric Secretion and Disorders of the Stomach."

Societies Plan Care of Indigent Poor.—The Muskegon County Medical Society recently presented a plan providing for the care of indigent poor to the health and welfare committee of the board of supervisors, which is estimated to save the county $10,000 a year over the hospitalization cost at Ann Arbor. According to the newspapers, the medical society, under the plan, would give all medical and surgical care for the county's patients at $10,000 a year per 200 patients. The cost would be on a ratio basis depending on the number treated. The society would appoint a director who would assign members to the tasks in regular order. No part of the $10,000 would go to any individual physician but would go to the society. It was said that the hospitals had agreed on a flat rate of $4.50; when a patient was dismissed, he could be brought back for periodic treatments at 50 cents a day, it was stated. In presenting the plan, Dr. Louis LeFevre acted as spokesman for the society. It was reported that Genesee and Wexford counties had adopted similar plans. In Ingham County, the indigent poor would be cared for at a free clinic, according to the proposed plan of the Ingham County Medical Society as reported in the newspapers. This plan is also under consideration by council members.

MINNESOTA

Society News.—At the thirteenth annual reunion of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic and Mayo Foundation, in Rochester, October 9, a silver platter was presented to Dr. William J. Mayo in honor of his seventieth birthday. The annual session was brought to a close with the presidential speech of Dr. James I. Scarborough, Little Rock, Ark., on "Ethics and Economics in Medicine." Officers for the ensuing year are Drs. Egerton L. Crispin, Los Angeles, president; Thomas J. Kinsella, Oak Terrace, secretary, reelected, and Porter P. Vinson, Rochester, associate secretary and treasurer, reelected.

"Lecturer" Lally Forfeits Bond.—A complaint was filed in the municipal court in Minneapolis, September 14, alleging that one John Hugh Lally had practiced healing without a basic science certificate. Following a preliminary hearing, Lally's bail was set at $1,250. September 28, the day of the trial, counsel for the defendant informed the court that Lally had left for Detroit. The judge ordered that the defendant's bail be forfeited and a bench warrant issued for his arrest. Lally, who is said to be a lawyer, licensed in Illinois, has been touring the country giving health lectures (The Journal, Feb. 21, 1931, p. 620). He has been previously convicted of violating the medical laws in Chicago and in Winnipeg, Manit.

NEBRASKA

Society News.—Dr. Franklin G. Ebaugh, Denver, addressed the Elkhorn Valley Medical Society, Norfolk, August 26, on "Significance of Psychoneuroses in the General Practice of Medicine."——Drs. Jacob N. Lande and William Jepson, Sioux City, Iowa, addressed the Madison Five Counties Medical Society, September 8, on "Premature Infants and Their Management" and "Increasing Responsibility of Surgery," respectively.——Dr. Ernest L. MacQuiddy, Omaha, addressed the Otoe County Medical Society, Nebraska City, September 14, on desensitization treatment for hay fever.——Dr. Robert A. Cooke, New York, addressed the Omaha-Douglas County Medical Society, October 15, on "Clinical Manifestations of Allergy."

NEW YORK

Society News.—Drs. John A. Conway, Hornell, and Arthur C. Morgan, Philadelphia, among others, addressed the annual meeting of the sixth district branch of the Medical Society of the State of New York, Waverly, September 22, on "Typhoid Carriers—Medical and Surgical Management" and "The Treatment of Cardiac Tragedies," respectively.

State Society Sponsors Broadcasts.—After two years of research and preparation, the committee on health examinati of the Medical Society of the State of New York has begun a year's program of radio broadcasts on the Columbia chain. The talks, which are to be given by physicians each Thursday at 11 o'clock, are concentrated on preclinical medicine. For this year they will deal with problems of women from childhood to old age. All fields of medicine will be covered, and the medical policy will be conservative, constructive, without special doctrine and strictly impersonal.

New York City

Friday Afternoon Lectures.—Recent lectures in the Friday afternoon series sponsored by the Medical Society of the County of Kings have been delivered by Drs. James T. Rugh, Philadelphia, October 16, on "Significance of Low Back Pain"; Robert A. Kilduffe, Atlantic City, October 23, "Serological Study of Syphilis," and George Baehr, October 30, "Presenile Vascular Diseases." The next two lectures will be given by Drs. George W. Holmes, Boston, November 6, "Use of X-Rays in Diseases of the Chest," and Francis C. Goldsborough, Buffalo, November 13, "Toxemias of Pregnancy."

Hospital Staff Appointments.—The Hospital for Joint Diseases announces that six positions on its general service are open, three to begin July 1, 1932, and three, Jan. 1, 1933, for two years' rotating service. At the completion of the two years, graduating interns are eligible for a residency in orthopedic surgery for eighteen months, the Frauenthal Travel Scholarship of $2,400 for six months' study in the United States and six months in Europe and the two Mr. and Mrs. Frederick Brown Research Fellowships of $2,400 each. Unmarried graduating students and graduates of class A medical schools are eligible. Applications should be hand-written and should be addressed to the director of the hospital, Madison Avenue, One Hundred and Twenty-Third Street to One Hundred and Twenty-Fourth Street.

Faculty Changes at Long Island College.—Appointments and promotions at Long Island College of Medicine were announced at the beginning of the fall session as follows:

New appointments:

Drs. Frank B. Cross and William H. Lohman, clinical medicine.
Dr. Walter A. Sherwood, clinical surgery.
Drs. O. Paul Humpstone and Sylvester J. McNamara, clinical obstetrics and gynecology.
Dr. Alfred Adler, Vienna, special lecturer in medical psychology.
Dr. Robert L. Moorhead, special lecturer in otolaryngology.
Dr. Joseph Raphael, assistant clinical professor of surgery.
Drs. Bernhard A. Fedde and Daniel M. McCarthy, assistant clinical professors of medicine.

Promotions:

Drs. Benjamin Kramer, Paul L. Parrish and Murray B. Gordon, professors of clinical pediatrics.
Drs. Edwin H. Fiske, Robert F. Barber and William Linder, professors of clinical surgery.
Drs. Charles A. Gordon and Joshua Ronsheim, professors of clinical obstetrics and gynecology.
Drs. Francis B. Doyle, George Kornfeld, Samuel G. Blum and Mervyn V. Armstrong, assistant professors of clinical obstetrics and gynecology.
Drs. DeForest T. Layton and George H. Lordi, assistant clinical professors of medicine.
Drs. Samuel Linder and William Wolfson, assistant clinical professors of surgery.
Dr. Edward E. Hicks, assistant clinical professor of neurology.
Dr. Silik H. Polayes, assistant professor in pathology.

The resignations of Drs. H. Sheridan Baketel, professor of preventive medicine and hygiene, and Alfred Potter, professor of dermatology, were announced. Each became professor emeritus in his department. Dr. Frank L. Babbott, Jr., was recently made president of the college.

NORTH DAKOTA

Society News.—Dr. Alexander Gibson, Winnipeg, Manit., addressed the Grand Forks District Medical Society, Grafton, September 16, on fractures.——Dr. Leonard W. Larson, Bismarck, addressed the Southwest District Medical Society, Mott, July 29, on diseases of the blood.

OHIO

Hospital News.—The state board of control has appropriated $40,000 for expansion of the Cleveland State Hospital as a consequence of the epidemic of typhoid which recently swept the institution. It was said that the hospital, which had been built to accommodate 1,700 patients, was actually housing 2,350 and that the overcrowding increased the difficulty in controlling the epidemic. Of the amount appropriated, $10,000 will be used for construction and equipment at Hawthorndon, $20,000 for remodeling wards at the Cleveland hospital, $5,000 for repairs to walls and roofs, and $5,000 for rewiring. Twelve deaths had occurred up to September 23 among the 125 patients stricken with typhoid.

Society News.—Dr. Virgil H. Hay, Lima, was elected president of the Northwestern Ohio Medical Association at its meeting in Marion, October 6. The spring session will be held in Lima.——Five concerts will be given by the Doctors' Orchestra of Akron during the coming season, one for the Summit County Medical Society and four for Akron hospitals. Dr. Alexander S. McCormick is director of the orchestra.——Drs. Robert B. Osgood, Boston, and George L. Lambright addressed the Cleveland Academy of Medicine, October 16, on "Diverticulitis" and "The Problem of Arthritis," respectively.——Harry Sobotka, head of the department of biochemistry, Mount Sinai Hospital, New York, gave a special lecture at the Institute of Pathology, Cleveland, October 14, on "Bile Acids and Their Importance in Physiology and Pathology."——Dr. Arthur M. Culler addressed the Montgomery County Medical Society, Dayton, October 16, on "Changes in the Eyegrounds in Arteriosclerosis.——Dr. John A. Fisher, Cincinnati, addressed the Auglaize County Medical Society, St. Marys, October 8, on "Pathology, Diagnosis and Treatment of Genito-Urinary Obstruction."——Dr. William H. Ross, Brentwood, N. Y., addressed the Cincinnati Academy of Medicine, October 5, on "Changing Relations in Medicine."——Dr. John D. Osmond, Cleveland, discussed roentgen diagnosis of tumors of the stomach and intestine at a meeting of the Ashtabula County Medical Society, Ashtabula, October 13.——Dr. Frank Smithies, Chicago, addressed the Mahoning County Medical Society at Youngstown, October 27, on "Gastrorrhagia—Its Pathological and Clinical Significance and Its Management."

PENNSYLVANIA

Society News.—Dr. Simon W. Marick, among others, addressed the Pittsburgh Pediatric Society, October 23, on "Treatment of Chorea with Phenylethylhydantoin."——Arthur Isaac Kendall, Dr.P.H., Chicago, delivered an address on the isolation and cultivation of bacteria in the filtrable state, October 21, in Pittsburgh, under the auspices of the Pittsburgh Diagnostic Clinic.——Dr. Thomas Klein, Philadelphia, addressed the Berks County Medical Society, Reading, September 7, on cardiac failure.——Dr. Earl D. Osborne, Buffalo, addressed the Erie County Medical Society, in September, on the modern treatment of syphilis.

Philadelphia

Society News.—Dr. Stanley Cobb, Boston, addressed the Philadelphia Neurological Society, October 23, on "Etiological Factors in Convulsions."

Tuberculosis Campaign in High Schools.—Four thousand high school students will be examined during the current school year in a campaign for the discovery of tuberculosis in adolescents in Philadelphia. The campaign is under the joint auspices of the Philadelphia Health Council and Tuberculosis Committee, the board of education and the Henry Phipps Institute.

Hospital News.—Kensington Hospital for Women has undergone a reorganization restricting its activities to the study and treatment of diseases peculiar to women, the basis on which it was originally founded.——A new department of physical medicine was recently opened at Temple University Hospital under the direction of Dr. Frank H. Krusen, associate dean of the school of medicine. The department occupies a suite of eleven rooms.——The Wills Hospital has sold the site it has occupied for a hundred years and will celebrate its centenary in 1932 in a new building at Sixteenth and Spring Garden streets. According to present plans, the new structure will be eight stories high, with 200 beds. For the first time the hospital will have a number of rooms for private patients.

Changes in Faculty at University of Pennsylvania.—The following promotions in the University of Pennsylvania School of Medicine were announced at the opening of the autumn session:

Dr. Stuart Mudd, associate professor of bacteriology.
Drs. Donald M. Pillsbury, Roy G. Williams and Joseph Stokes, Jr., associate professors of dermatology and syphilology, anatomy and pediatrics, respectively.

In the graduate school of medicine the following were promoted:

Drs. Ralph Pemberton and William D. Stroud, professors of medicine and cardiology, respectively.
Drs. Edward W. Beach and Truman G. Schnabel, assistant professors of anesthesia and medicine, respectively.

Drs. Albert E. Roussel, professor of medicine, and James E. Talley, professor of cardiology, retired as emeritus professors in their respective departments. The appointments of Dr. Edward A. Strecker as professor of psychiatry and of Dr. Clarence R. O'Crowley as assistant professor of urology were announced in The Journal, October 3, p. 1011, and October 10, p. 1084.

SOUTH CAROLINA

Society News.—Drs. Julian D. Hart and Alfred R. Shands, Jr., Durham, N. C., addressed the Seventh District Medical Society, Sumter, September 24, on "Treatment of Chronic Empyema by Preliminary Tidal Irrigation by Thoracoplasty" and "Infection in and about the Hip Joint," respectively.——Among speakers at a meeting of the Second District Medical Society, Leesville, recently, were Bruce Mayne, D.P.H., Columbia, on malaria therapy in dementia paralytica; Drs. Charles V. Akin, Jr., Columbia, on his investigations of pellagra in the state, and Orlando B. Mayer, Columbia, clinical aspects of gastric ptosis.——Drs. Marion H. and Hugh E. Wyman addressed the Columbia Medical Society, August 10, on "Urinary Obstruction" and Dr. James E. Boone, on "Importance of Urological Investigation."

WISCONSIN

License Revoked.—The license of Dr. Arne W. Matheson, Neillsville, was revoked, June 30, after he had been fined $500 for having performed an illegal operation, according to the state board of medical examiners.

Bureau of Blood Donors.—The Medical Society of Milwaukee will inaugurate a bureau of blood donors for the service of all Milwaukee hospitals, November 1. The hospitals will do the laboratory work of typing the blood and testing it for venereal disease. Donors are then to be registered with the bureau, which will locate them immediately on call from a hospital. Records will be kept to show how often the blood of each donor is used. The bureau will be operated in connection with the telephone service owned by the society.

Society News.—A program on medical economics was held by the Medical Society of Milwaukee County, October 14; speakers were Mr. Hugh W. Grove of the First Wisconsin Trust Company, on "Safe Investments" and Mr. Robert R. Aurner, professor of business administration, University of Wisconsin, Madison, on "Putting Simple Business Methods into the Doctor's Office."——The Rock County Medical Society has formed a cooperative organization to conduct free county medical clinics for persons unable to meet the cost of medical service. Members are to specify the type of cases they prefer to handle and groups will be organized to assure even distribution of work. Clinics will probably be organized at Beloit and Janesville. The community chest in Beloit has been asked to finance the expenses of the clinic there. Dr. Wayne A. Munn, Janesville, is president of the clinic corporation.——Drs. Paul F. Doege, Marshfield, and Tobias L. Birnberg, St. Paul, addressed the ninth councilor district medical society, Wausau, September 30, on endometritis and medical problems in Russia, respectively.

GENERAL

Examinations in Otolaryngology.—Thirty-four candidates passed the examination held by the American Board of Otolaryngology, at French Lick, Ind., September 12, the secretary reports. Nine failed or were conditioned. The next examination will be held in New Orleans, May 9, preceding the annual session of the American Medical Association. Prospective candidates should write to the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb., for application blanks.

Accidents in the Home.—Nearly a third of the fatal accidents that occur in the United States each year arise out of hazards in the home. Among industrial policyholders of the Metropolitan Life Insurance Company, the death rate from domestic injuries in 1925 was 14 per hundred thousand and by 1930 it had been reduced only to 13.3. The slight decrease was attributed to a decline in mortality from accidental burns and gas poisoning. On the other hand, fatal accidental falls in the home have increased 40 per cent in the past five years, analysis of the insurance company's figures show. The largest proportion of fatalities from falls result from tripping on stairs. The decline in the number of burns and scalds is believed to reflect the installation of safe heating facilities in homes and the similar decrease in gas poisonings is ascribed to improvements in gas appliances. These three major hazards account for 73 per cent of the home fatalities reported each year, according to this study.

Report on Experiment with Middle-Rate Plan.—In March, 1930, a plan was inaugurated by the Massachusetts General Hospital, Boston, to care for persons of moderate means in the Baker Memorial Pavilion. The Julius Rosenwald Fund, Chicago, cooperated to meet half the deficit in the first three experimental years. Once fully established, the service is expected to be self-supporting. During the first year's operation, nearly 2,500 patients were treated, representing the lower-salaried professional groups. The average family income was $2,500. The total average cost paid by patients under the middle-rate plan averaged $173, the average length of stay in the hospital being 13 days. The average was made higher by a few instances of prolonged illness, one of more than six months with a bill of $1,769. The patient receives only one bill, which includes the physician's fee and all other charges. The hospital collects the whole bill and turns over the fee to the physician in charge of the patient. Provision is made for instalment payment. The purpose is to minimize the cost of hospitalized illness, including the fees for physician and special nurse, by consolidating costs, furnishing service on a sufficiently large scale to permit economy in administration, and offering it without profit and without charity.

Society News.—The eightieth annual meeting of the American Pharmaceutical Association will be held in Toronto, Aug. 22-27, 1932, jointly with the Canadian Pharmaceutical Association.——The annual convention of the American Association for Hygiene and Baths will be held in Detroit, November 6-7, under the auspices of the Detroit Department of Health with the cooperation of the Michigan State Department of Health. There will be symposiums on "The Place of the Swimming Pool and Its Program in the Community," "Medical Aspects of Pool Sanitation" and state regulations of swimming pools. Dr. Joseph E. Gichner, Baltimore, is president of the association.——Dr. Frank H. Ewerhardt, St. Louis, was installed as president of the American Congress of Physical Therapy at its session in Omaha, October 7; Dr. Gustav Kolischer, Chicago, was made president-elect, and Dr. Frederick B. Balmer, Chicago, elected secretary. The next annual session will be held at New York.——The next annual meeting of the American Dermatological Association, Incorporated, will be held in Havana, Cuba, May 3-5, 1932, with headquarters at the National Hotel.——At the recent meeting of the American Academy of Physical Therapy, Montreal, Dr. William F. Roberts, Saint John, N. B., was elected president. Vice presidents elected are Drs. Grant E. Ward, Baltimore, and Vernon C. Stewart, Woburn, Mass.——The annual meeting of the Central Society for Clinical Research will be held in Chicago, November 20. Dr. Lawrence D. Thompson, St. Louis, is secretary of the society.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hospital for Joint Diseases, New York, $5,000 by the will of Joseph L. Graf.

Montefiore Hospital, $300,000; the Solomon and Betty Loeb Hospital Home for Convalescents, $25,000, and the Babies' Hospital, $25,000, all of New York, by the will of the late Jacob Schiff.

New York Hospital, $21,691,593, and Nassau Hospital, $657,321, from the residuary estate of the late Payne Whitney.

Montefiore Hospital, New York, $5,000 by the will of the late Charles F. Louis.

Ossining Hospital Association, $10,000 by the will of the late Frederick M. Hilton.

St. Philip Hospital, Richmond, Va., $144,114.66, from the late Martha Allen Wise.

St. Louis Children's Hospital, $5,000 by the will of the late Mrs. Katherine Burnes Gatch, St. Louis.

Methodist Episcopal Hospital, Philadelphia, $5,000 by the will of Miss Emily Bell.

Manhattan Eye, Ear and Throat Hospital, New York, $75,984 under the will of the late Otto M. Eidlitz.

Passaic Hospital Association, Passaic, N. J., $5,000 by the will of Robert Dixon Benson.

Truesdale Hospital, Fall River, Mass., $25,000, bequeathed by the late Mary Brayton.

Wyckoff Heights Hospital, Brooklyn, $10,000 by the will of the late Katharine Quick Nissen.

Caledonian Hospital, Brooklyn, $7,500 by the will of the late David Reid, Old Greenwich, Conn.

New York Association for the Blind, $5,000 by the will of the late Mrs. Anne K. Smith.

Mary Hitchcock Memorial Hospital, Hanover, N. H., $125,000, and Rockingham General Hospital, Bellows Falls, Vt., $5,000 by the will of Charles N. Vilas, Alstead, N. H.

Portsmouth Hospital, Portsmouth, N. H., $1,000 by the will of Miss Eleanor B. Haven, Lancaster, Mass.

Newport Hospital, Newport, R. I., $20,000 from the estate of Ellen F. Mason.

Pennsylvania Hospital, Philadelphia, $5,000 by the will of the late Mary Jane Witham.

University of Pennsylvania and Pennsylvania Hospital, Philadelphia, $39,850 from the estate of the late Mrs. Sophia K. Garvin.

Philadelphia Home for Incurables, $67,000 from the estate of Thomas D. Mowlds, Ardmore.

National Committee Establishes Division of Education.—The establishment of a new division to promote psychiatric education and to develop trained personnel to meet the needs of expanding psychiatric and mental hygiene activities in the United States is announced by the National Committee for Mental Hygiene, New York. The new division plans to work out methods for recruiting and training psychiatric and mental hygiene personnel; to secure more qualified candidates for such work; to appraise and assist in the development of existing educational facilities; to study the programs now followed in medical schools in the teaching of psychiatry; to administer fellowships and to assist in placing trained personnel in university, hospital and community mental hygiene work. Its work will be centered largely around medical schools with the twofold purpose of attracting medical students to the specialty of psychiatry and of imparting a working knowledge of the subject to the medical profession in general. Dr. Ralph A. Noble, Sydney, Australia, will be in active charge of the division and Dr. Franklin G. Ebaugh, professor of psychiatry, University of Colorado School of Medicine, Denver, and director of the Colorado State Psychopathic Hospital, on leave of absence for a year, will assist in conducting surveys and studies. The new division is established with the aid of the Commonwealth Fund, the New York Foundation and the American Foundation for Mental Hygiene, according to the announcement from Dr. Clarence M. Hincks, general director of the national committee. An advisory committee to guide the development of the program has been formed with the following membership: Drs. Adolf Meyer, Baltimore, chairman, Albert M. Barrett, Ann Arbor, Mich., Earl D. Bond, Philadelphia, C. Macfie Campbell, Boston, Clarence O. Cheney, New York, Lawson G. Lowrey, New York, Maurice H. Rees, Denver, Arthur H. Ruggles, Providence, R. I., and William L. Russell, White Plains, N. Y.

CANADA

Personal.—Dr. Frederick G. Banting, professor of medical research, University of Toronto Faculty of Medicine, received the honorary degree of doctor of science at the annual convocation of the University of the State of New York, Albany, October 15. The degree was conferred by Frank P. Graves, state commissioner of education.

University News.—Dr. P. Calixte Dagneau, Quebec, has been appointed to the staff of Laval University to succeed the late Dr. E. T. Arthur Simard. He will give courses in external pathology and surgical clinics.——Sir Charles S. Sherrington, Waynflete professor of physiology at Oxford, has been awarded the Charles Mickle Fellowship by the University of Toronto in recognition of his research on the brain and nervous system. This fellowship, which is the annual income from an endowment of $25,000, established by the late Dr. W. J. Mickle, is given annually to the member of the medical profession who is believed to have done most during the preceding ten years to advance practical knowledge of medical art or science.

Society News.—Dr. John Harris McPhedran delivered his inaugural address as president of the Toronto Academy of Medicine at the annual meeting, October 6, on "The Varied Interests, Activities and Responsibilities of the Academy of Medicine, Toronto." At a special meeting of the academy, October 23, William Wright, professor of anatomy, University of London, presented "A Lecture on Anatomy as It Would Have Been Given by Andreas Vesalius" and George A. Buckmaster, professor of physiology, University of Bristol, "Reminiscences of the Founders of English Physiology."——Drs. John S. Burris, Kamloops, B. C., and Alexander S. Lamb, Vancouver, addressed the Vancouver Medical Association, October 6, on surgical treatment and home treatment, respectively, of tuberculosis. Drs. Harold A. DesBrisay and William T. Lockhart will address the society, November 3, on "Syphilis in Medical Practice" and "Treatment of Syphilis," respectively.

Provincial Medical Meetings.—The annual meeting of the Manitoba Medical Association was held at Brandon, September 9-10. Among the speakers were Drs. Alexander Primrose, Toronto, on malignant disease; George F. Strong, Vancouver, cardiac irregularities, and Theodore H. Lennie, Vancouver, management of toxic goiter. A symposium on mental conditions was conducted at the Brandon Mental Hospital. Dr. Rosslyn B. Mitchell, Winnipeg, was elected president.——The annual meeting of the Province of Quebec Medical Association, Quebec, September 10, took the form of a "clinical day," with clinics at the Hôpital Saint-Sacrement and Hôtel-Dieu. Following these, addresses were delivered by Prof. E. Sergent of the University of Paris, on pulmonary cancer, and Dr. Edward W. Archibald of McGill University, on indications for phrenicectomy in pulmonary disease. Dr. Joseph R. Belisle, Hull, was elected president for 1932.——At the recent annual meeting of the Prince Edward Island Medical Society, Drs. William B. Hendry and George S. Young, Toronto, were among the speakers; their subjects were "Antenatal and Postnatal Care in Obstetrics" and "Mental Aspects of Disease," respectively.

Deaths in Other Countries

Arthur Schnitzler, Vienna, Austria, also a novelist, poet and dramatist, aged 69, October 21, of heart disease.——**Prof. Constantin von Economo**, Vienna, known for his work on epidemic encephalitis, October 21, aged 55, of heart disease.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 10, 1931.

Refusal of British Medical Association to Accept the Economy Proposal

In a previous letter to The Journal it was stated that the Insurance Acts Committee of the British Medical Association aquiesced in a cut of about 11 per cent in the capitation fee of panel physicians as part of the economy proposals of the national government, rendered necessary by socialistic expenditure. The committee was assured that the government was determined to stand or fall by the whole of its economy proposals and this led the committee to think that the wise course was to submit to the reduction. However, in consequence of protests the government subsequently varied its proposals, as they affected teachers, the defense forces and the police. The committee held this to be a breach of faith and informed the government that the matter would have to be reconsidered. The government then stated that it would substitute for its original proposals an all round reduction of 10 per cent for the various services. The committee requested that before making the 10 per cent reduction an allowance be made for the expenses of practice; in other words, to make the percentage reduction on the capitation fee on the net and not the gross earnings. The government replied that when it altered the proposals for the other services it thought it was only fair that a maximum cut of 10 per cent which it finally determined for other services should also be applied to the medical service, but that while most anxious that the services called for should be equitable between the classes affected, it was impossible to secure precise equality owing to wide variations in conditions of service. If the claims for making allowances for expenses were admitted, they would be put forward by others besides physicians. The government could not accept the proposal and hoped that physicians would continue "to show the same spirit of readiness to assist the national cause" as they had done. However, the committee replied that it could not accept, and held that physicians were being unequally dealt with as compared with other bodies. Panel committees were therefore requested to hold meetings of physicians to instruct their representatives for a conference, which will be held.

The Population Problem

At the meeting of the British Association for the Advancement of Science, Prof. Edwin Cannan, president of the Section of Economics, described the changed outlook since a century ago, when Malthus still lived. No one attached much importance then to his doctrine that population tended to outgrow the means of subsistence. But economic history brought about an almost complete reversal of these views. For one thing the ratio of births to marriages showed an almost steady decrease from 4.36 to 2.14, and our population now showed a tendency to become stationary or to decrease. Emphasis on food had changed, as it was realized that food could be grown more rapidly than the demand for it. Is cessation of the growth of population good or evil? The limitations of economics and perhaps of human nature prevent any straight answer.

Prof. Julian S. Huxley said that the possibility of migration on a large scale was rapidly coming to an end. So too was that of rapid expansion in many countries, for example, India, China, Britain and Belgium, under the economic conditions existing. The deliberate prevention of conception by large sections of the population was a new phenomenon of the first magnitude, which was not unlikely to affect all countries in the coming century, with a resulting danger of depopulation. Owing to the progress of medicine and to social services, natural selection was not nearly so rigorous and if, as appeared, most mutations were deleterious, means must be found of introducing artificial selection if degeneration was to be prevented. The problem of human population had reached a stage at which scientific study and control were urgently required, as regards both quantity and quality.

Prof. A. M. Carr-Saunders estimated the world population in 1650 at 465 millions; in 1750, at 660; in 1800, at 840; in 1850, at 1,100, and at the present time, at about 1,900. In those two and one-half centuries predominance in race increase passed from the Asiatic to the European races, which still retained it. During the last sixty years the birth rate had declined among every people of European descent. We were no longer reproducing our population, and the United States was only just doing so.

Prof. L. T. Hogben doubted whether experimental biology was able to provide any new formula to replace the malthusian doctrine (notwithstanding Malthus's defective mathematics). Economists and statisticians favored the view that the decline of the European birth rate was due to contraceptive measures. But he did not believe that the decline of the English birth rate was due almost exclusively to this. It might be largely due to abstention, to changes in diet and social hygiene, and to economic prudence. Western Europe was faced with a decline of population and not merely of birth rate. Once the decline had begun, it was difficult to say how far it might go before means of arresting it were found.

Air Pollution by Smoke

In his address to the annual conference of the National Smoke Abatement Society, the president, Dr. H. A. des Voeux, said that excessive smoke was not a necessity, but a luxury of laziness, which should not be allowed by authorities charged with the protection of the health of the people. The local authorities were working in conjunction with the Department of Scientific and Industrial Research, which was investigating the impurities of the atmosphere. In the square mile of the city of London, 150 tons of dirt fell in 1911, while in 1930 the figure was 380 tons. Similar figures were obtainable from other large centers. The destructive element in the combustion of coal was now known to be sulphur dioxide, which was turned into sulphuric acid in the air. The report on the disastrous fogs in the Meuse valley last winter stated definitely that the deaths were due to suffocation, which might easily be reproduced in closely inhabited neighborhoods had not the government been forewarned in time to insist that measures must be taken to prevent the escape of this gas into the air, or to neutralize it before it escaped. At the new electric station being erected at Battersea (in London) the enormous amount of 2,000 tons of coal would be burned daily, emitting at the smallest calculation 30 tons of sulphur, which is equivalent to 90 tons of sulphuric acid. Imagine the effect of this acid accumulating, as it well might, for four or five days on the unfortunate population of closely packed Battersea. But in speaking of factory smoke he did not minimize the effect of the domestic chimney, especially the kitchen range. But the domestic chimney could not be abolished until smokeless fuel could be produced at the price the poor could afford.

A report was presented by the Greater London Joint Smoke Abatement Committee, regretting that no satisfactory method of measuring the density of smoke had yet been evolved. The subject was still receiving the attention of the government fuel research station. Great progress had been made in London in connection with the control of smoke emission. Beneficial effects were being secured under the law which prohibited the emission of black smoke for more than three minutes in thirty, but the committee was still not satisfied and regarded a two minute period as necessary, which it hoped would be in force in 1936.

Memorial to James Mackenzie

In the Lancashire manufacturing town of Burnley, James Mackenzie followed for many years the career of a general practitioner and at the same time laid the foundation of modern cardiology. It is fitting that, at Lord Moynihan's suggestion, a plaque has been placed on the house where he lived and a bust placed in the public park. The plaque bears the inscription: "Sir James Mackenzie, M.D., LL.D., F.R.S., F.R.C.P., 1853-1925. Who achieved fame by his researches in connection with diseases of the heart, was from 1879 to 1907 a general practitioner in Burnley and lived in this house." In unveiling the bust, Lord Moynihan described Mackenzie as "perhaps the greatest general practitioner we have ever produced, and who was certainly possessed of the most acute and original mind of any physician who has practiced in this country during the last fifty years." Like Hippocrates, his eye saw things which escaped the observation of others. His greatest work was concerned with disease of the heart, but a philosopher might claim that his method of work was even greater than his results. He vindicated the hippocratic method, the method of accurate clinical observation leading to wide generalization. He rather disdained the academic scholar, the learned collector of other men's opinions. His invention of the polygraph, a feat acclaimed throughout the world, enabled him to read the heart's action as in a book. Many of his disciples failed to understand the real significance and philosophic basis of his work. So after years of consulting work in London he went back to general practice and established the institute at St. Andrew's for the study of disease in its early stage.

PARIS

(From Our Regular Correspondent)

Sept. 23, 1931.

The Third International Congress of Radiology

A number of international congresses were held in Paris during August and September, in connection with the Colonial Exposition. Their transactions represented, for the most part, a recapitulation of the present status of scientific research and did not bring any sensational discoveries. The Congress of Radiology brought together 1,300 roentgenologists from all parts of the world. The attendance would have been much greater if the German contingent had not stayed away on account of the economic crisis and the urgent request that no one leave Germany, unless absolutely necessary, in order not to aggravate the financial situation by the withdrawal of money from the country. The congress, held at the Sorbonne, was presided over by Dr. Antoine Béclère, in the presence of the minister of public health. On this occasion, diplomas honoris causa were presented to Dr. Béclère by the Royal Society of Radiology of London, and by Professor Schinz in the name of the University of Zurich; two gavels also were presented to him, one made from the tooth of a mammoth, and the other of ebony, set with a diamond, the donors being respectively Professor Forssell of Stockholm, former president of the congress, and Dr. Pfahler, in the name of the American College of Radiology. Madame Curie was likewise presented with a gold medal by the American College of Radiology. The duc de Broglie, chairman of the committee on standards of measurement, gave an account of the work of the committee charged with matters of precision in connection with the international acceptance of the units previously adopted at Stockholm. Dr. Ledoux-Lebard, general secretary of the congress, read then the recommendations proposed by the committee against the dangerous effects of various rays and radioactive substances. The next congress will meet at Zurich in 1934 under the chairmanship of Professor Schinz. Professor Forssell gave a survey of the present status of the use of irradiations in the treatment of cancer. He estimates that only a third of cancer sufferers present themselves to the surgeon in a state of operability, the result of which is that surgery is able to cure only one tenth of cancerous persons, so that 90 per cent of them require treatment other than surgery. In about 50 per cent, the radiotherapeutic methods are capable of bringing considerable relief, objectively and subjectively. In from 15 to 20 per cent of the total number of cancerous patients they effect a disappearance of the symptoms for periods of varying length. In certain localizations of cancer, radiotherapy gives results superior to those of surgery, from the standpoint of permanent recovery, which entitles it to preference not only in operable but also in inoperable cases. Dr. Lewis G. Cole of New York spoke on the radiologic exploration of the intestinal mucosa, of the preparation of the patient for this examination, and of the interpretation of the roentgenograms. Dr. Lynham of London read a paper on the preoperative and postoperative treatment of cancer of the breast by means of irradiations. He reported 57,000 deaths due in England to this form of cancer during the previous ten years, death resulting usually from metastases. He explained his method of combining radiotherapeutic treatment with surgical intervention. Buisson of Turin suggested applying systematically castration by means of roentgen rays to women affected with pulmonary, peritoneal and adnexal tuberculosis, associated with menstrual disorders. Palumbo of Florence spoke on the physical doses and the biologic doses in radium therapy, the latter being the more important for the result but at the same time the more difficult to measure, as they vary with the individual patient, the erythema dose serving always as a basis. Auclair and Halphen reported the results of research carried out in the Hôpital Rothschild, on the use of artificial fever, in the treatment of dementia paralytica, chronic rheumatism, and radioresistant cancers (combined with radium therapy); they utilize concurrently the American types of apparatus introduced by Neymann and by Carpenter. Mehrabian of Teheran discussed the use of roentgen rays and of ultraviolet rays in the treatment of visceral tuberculosis and tuberculosis of the bone. Sarrand and Belot considered the value of roentgenotherapy in exophthalmic goiter. A huge exhibit of radiologic apparatus was held during the congress. There was exhibited a giant apparatus, of French construction, for the application of high voltage roentgen therapy, capable of producing 700,000 volts. Since, thus far, no tube has been constructed capable of supporting such a potential, the apparatus is used to supply two or three tubes with a capacity of 400,000 volts. It is employed at the anticancer center of Villejuif, near Paris, which is under the direction of Professor Roussy.

Privileges Demanded for Physicians' Automobiles

The difficulties of traffic in large cities, which result from the constant increase in automobiles in circulation, have obliged the authorities to adopt severe measures to prevent the blocking of traffic, which is due often to the parking of vehicles along the sidewalks. But the duration of the parking privilege, in the center of Paris, is limited to a few minutes, and applies to only one side of the street, the parking side alternating each day from one side of the street to the other. The ordinance is enforced strictly by the police. For longer periods (if one knows in advance) a car must be parked in certain places reserved for the purpose, and these are often some distance away. This ordinance works hardship on physicians, since, in visiting a patient, they cannot know in advance the duration of their consultation. Paris physicians having had numerous fines imposed on them by policemen who interpret their orders slavishly, a protest was made to the prefect of police in the name of the medical syndicate, in order that a physician might be given the privilege of parking his automobile in front of a patient's residence as long as the exigencies of the case require. It has been proposed that an enameled plaque bearing the insignia of the Red Cross be placed by the prefecture of police on all the vehicles of physicians, in order that they may be thus protected against the fines imposed by policemen.

News Items

The Clinic of the American Legion was recently opened in Paris, in the villa Eugène-Manuel, at Passy, for the care of Americans residing in Paris. Dr. Alexander Bruno, of the Royal College of Surgeons, is the director of the new institution, who will be aided by many well known practitioners: Drs. Herman, Hiller, Letulle, Busy, Gourliau.

Mr. Robert Davis, director of the American Library, has been appointed general manager of the American Hospital in Paris. He succeeds Major Claflin Davis, who resigned for reasons of health. Major Davis was called in April, 1930, to the management of the hospital; he was previously engaged in the practice of law in Boston. During the war, he took part in the work of the Red Cross in the East. He had been director of the St. Lukes Hospital in Bethlehem, Palestine, before assuming management of the American Hospital in Paris. Mr. Robert Davis, who succeeds him, has resided many years in Bordeaux.

In the hotel Phare de France, the Franco-American institution for the reeducation of the war-blinded, located in Paris, rue Daru, Miss Genevieve Tyler, who has served as director of this institution for ten years, received the cross of the Legion of Honor from the hands of General Gouraud, military governor of Paris. The presentation was attended by French and American notables.

BERLIN

(From Our Regular Correspondent)

Sept. 14, 1931.

The Decline of Social Hygiene

The catastrophe which the present financial crisis really is in its practical effects on movements requiring the expenditure of public funds is not fully understood by all. A few examples give a picture of the bad hygienic conditions prevailing in certain quarters owing to the lack of public funds. The crisis that broke in July brought disastrous consequences to the work of the public welfare department. For example, two decrees of the director of a Prussian province state that considerable limitation of the expenditures for the care of cripples will be necessary, and that no further cripples can be admitted at present to institutional care. Likewise, even tuberculous persons can receive consideration only in especially urgent cases after special examination by an expert phthisiologist. It is possible that, because of the inability of the health authorities properly to care for the tuberculous, healthy persons in their environment may become contaminated, which with our present scientific knowledge and our perfected methods of organization might usually be prevented. The two decrees cited show how the two fields of sociohygienic work that heretofore have been regarded as the most important for the preservation of public health have been paralyzed. This may result not merely in a standstill of sociohygienic development but, which would be more disastrous, in the destruction of a delicate system that has been organized after much thought and labor. Von Hindenburg, the president of the reich, has said: "The preservation of the health of the German people is one of the most important duties of the government. Only a healthy German people will find its way out of the laborious present into a better future." In July, however, the government was forced practically to relinquish one of its most important duties. Through the welfare endeavors associated with free school lunches, these are closely connected with social hygiene. The conditions in this respect are again very bad. Parallel with the economic decline, the number of school children (for example, in Berlin) who go off to school without breakfast has increased by leaps and bounds. The reich and the states (*länder*) have withdrawn the former allowances to schools for food, and the allowances granted by the communes have been sharply reduced. The school physicians estimate that in Berlin there are 165,000 school children who are undernourished. Owing to the drastic cuts in the appropriations for free school lunches, at least 55,000 children in Berlin will remain undernourished.

Need of Cadavers for Anatomic Instruction

At the smaller universities it is often difficult to procure sufficient cadavers for anatomic instruction. In view of this lack, the University of Jena, acting in accord with the Thüringische Innen- und Volksbildungsministerium, has addressed a memorial to the people, in which it calls attention to the necessity of providing for the students of medicine better opportunities for the study of the human body on cadavers. The memorial takes a strong stand against the false conceptions that prevail concerning the treatment of dead bodies in the department of anatomy. It emphasizes that no bodies are multilated in the department, and that consequently a person who leaves instructions that his body shall be turned over, at his death, to the anatomic institute need have no fear of mutilation. It calls attention likewise to the fact that men such as Ernst Haeckel during their lifetime released their bodies for the purposes of anatomic study and thus performed a service for science and for their fellow men. In many cases it is certainly an advantage to study at the smaller universities. That is particularly true of medicine, in which the objective method and direct personal contacts are extremely important in many branches of the instruction. The significance of such an announcement as the foregoing should therefore not be exaggerated; there have always been in the past sufficient anatomic preparations.

Food Blockades and Disarmament

In the *Münchener medizinische Wochenschrift,* Prof. Karl Kisskalt, hygienist of Munich, publishes an article in which he describes briefly the misery caused by the food blockade during the World War and the period immediately following the armistice. In the Heil- und Pflegeanstalt Neustadt in Holstein, the records of which were studied by Kisskalt, 474 of the 800 inmates died in a single year. The death certificate gave cardiac degeneration as the cause of death, and necropsy showed complete absence of fat, but *starved* was not allowed to appear on the death certificate. Also many persons among the general population, who refused to buy anything from unauthorized pedlers, died of hunger, to mention only Gaffky, the director of the Institut für Infektionskrankheiten. The deaths resulting from the food blockade, during the war, are placed at 400,000. Are wars in the future to be carried on in this manner? For the German physicians who went through such experiences during the World War, it was pleasing to learn that President Hoover said in his armistice address of Nov. 11, 1929: "The time has come when we must prevent using as a weapon of war the starvation of women and children." All our hopes must be directed toward bringing about the realization of this idea. Will anything be done in the near future? At the recent preliminary disarmament conference this idea did not find expression. At least, in the future, a food blockade established in time of war should not be extended beyond the signing of an armistice.

Therefore, the German physicians, who saw the suffering caused by the food blockade, must demand that the disarmament conference convening in 1932 adopt the following regulation: "The establishment of a food blockade, with a view to cutting off the food supply of a people consisting of noncombatants (namely, women and children), shall not be permitted as a war measure." But if the conscience of the present race of mankind is not sufficiently matured that one can expect the adoption of such a regulation, then, as a minimum expression of the great need, the following resolution should be passed: "When a city has surrendered or when the army of a country has surrendered its most important weapons, it shall, in the future, no longer be permissible to cut off the food supply of the population."

Death of Professor Grotjahn

Alfred Grotjahn, ordinarius in social hygiene at the University of Berlin, died, September 4, from an exacerbation of an old gallbladder disorder, at the age of 61. Grotjahn's position among the hygienists of the present day was unique. His researches were characterized by a combination of social science and medicine. After spending sixteen years in the practice of medicine, he received a call to the University of Berlin as the director of the newly established department for social hygiene in the Hygienisches Institut. It was doubtless the merit of his research in the field of social medicine that attracted attention and made him appear a suitable candidate. In 1920 he became the occupant of the first chair of social hygiene. In his earliest works (for example, "Alcoholism," "Changes in the Diet of the People," "Alcohol and Workshop," "Hospital Management" and "The Health Center Movement") he treated problems in which economics and public health were closely associated and in which he made extensive use of the results of statistics. The peak of his creative literary activity was reached with "Social Pathology" (1912), which to a certain extent unfolds a theory of social hygiene based on the systematically studied relations between disease and the social world about us, and which even today may be regarded as a milestone in the development of his system and as a standard work on social hygiene. In addition, Grotjahn was always an active student of demography and, more particularly, of birth decline and the problem of bodily degeneration; birth decline and birth control in the light of individual and social hygiene; the hygiene of the propagation of man, and other kindred subjects.

VIENNA

(From Our Regular Correspondent)

Sept. 23, 1931.

Early Diagnosis of Cancer of the Cervix Uteri

At the second Frauenklinik of the University of Vienna, a method has been used during the last eighteen months which makes it possible to recognize in the earliest stages one of the most frequent forms of cancer of the uterus. The portio is brought into view with the aid of a speculum and is painted with an aqueous solution of iodine. The normal mucous membrane is colored a deep brown in a few seconds, but if there is a cancerous area it remains colorless and thus forms a distinct contrast with the surrounding healthy tissues. With the aid of a magnifying apparatus introduced with the speculum, the tiniest spots awakening a suspicion of cancer by reason of their colorless appearance can be discovered. With a curet some of the tissues comprising the colorless spots are removed and examined microscopically. This diagnostic method is based on the observation that the normal cells of the uterine mucosa contain a form of sugar that is stainable with iodine, whereas the sugar substance, and hence the stainability, is absent if the epithelium becomes cornified or degenerates owing to the presence of cancer. The microscopic examination reveals whether the colorless condition of certain areas is due to harmless cornification or to a cancerous change. Dr. W. Schiller, a physician of the Frauenklinik, stated that this diagnostic method is now applied systematically to all women who are admitted to the clinic. In many cases it has been possible to discover an incipient cancer that would otherwise have escaped diagnosis, which enabled the examiner to recommend an operation that offered the most favorable prospects for a lasting cure. The method permits, for the present, only the diagnosis of cancer of the portio; that is, of a limited part of the genital tract. Nevertheless, the relative frequency of cancer of the portio region justifies the importance that is ascribed to this method in the Frauenklinik.

International Congress of Women Physicians

The sixth International Congress of Women Physicians, held in Vienna, September 17-20, was attended by a large number of women physicians from forty-seven different countries. A surprising feature was the considerable number of representatives from the Mediterranean countries and the Far East. After the welcome by the representatives of the government, the University of Vienna, the city of Vienna and the medical societies, the transactions were opened with a paper by Madame Dr. Balfour on "The Condition of Women in India." The work of the congress covered two main topics: (1) the rôle of the woman physician in tropical countries, and (2) the legal protection of women workers from the sociohygienic point of view. Dr. Balfour discussed the evils to which women of India are exposed because of unenlightened religious customs, showing that often severe bodily injuries are traceable to religious observances. The woman physician plays an important part in combating such injuries. Madame Dr. Penell, a native of India, and Madame Dr. Dengel, a physician and missionary from the Punjab, described the lamentable situation of the women of India, and of Asiatic women in general; likewise, Madame Dr. Benson and Madame Butler-Adamson, two Anglo-Indians, outlined the sanitary conditions in India. They pointed out that the activities of the women in the hospitals in India are irreplaceable, since only British army physicians are otherwise to be found, to whom a native woman is reluctant to apply for medical aid. From the Congo region the congress received reliable accounts through Madame Dr. Rami, a Swiss physician, who described the poorly organized health service in this region, so far as women are concerned. Madame Dr. Jettmar reported from China that the League of Nations, in cooperation with the Chinese government, had created in recent years an organization that is promoting school hygiene and welfare work among infants, children and mothers. From Batavia Madame Dr. Van Made announced that the natives, and especially the women, are eager to take a course of treatment with arsphenamine, because the whole population has learned the good effects of such treatment in various diseases endemic in Java and in the archipelago in general. While serving as government physician, it had been her duty to travel through the country, on which journeys she would give upward of 200 injections of arsphenamine, and likewise inoculations against typhoid, cholera and smallpox. Reports from Algeria were presented by Madame Dr. Poli-Garnier and Madame Dr. Thuillier-Landry, who pointed out the many grave hygienic dangers incurred by women in that country.

For the second main topic of the congress many physicians presented themselves. After the paper offered by Frau Dr. Adler-Herzmark of Vienna, who discussed the methods of sociohygienic protection of workingwomen in Austria, Hungary, Germany, England, Netherlands, India, North America and Japan, a number of Italian, Swedish and English women physicians took the floor. There was a surprising diversity of opinion as to the protective measures that women needed. One group was made up of the women physicians of central and southern Europe, who agreed that women workers need legal protection against night work, overtime, work during periods preceding and following confinement, and also against injuries caused by certain types of work. The women physicians of northern Europe, however, were opposed to all protective laws, and advocated zealously the "open-door policy." In their opinion, the best protection for women is "Equal pay for equal work, for men and women." Certain points of the discussion deserve special mention; for example, the presentation of Madame Dr. Ella Lollini of Liguria, who described the operation in Italy of the prophylactic aid, for women, against tuberculosis, and likewise the statements of Madame Dr. Emilia Sorrentini of Rome, who explained the workings of the sick benefit funds in Italy, in which all persons gainfully employed are compelled to participate provided their earnings fall below 800 lire ($40) per month. The system includes old age insurance, disablement insurance, tuberculosis insurance, and (for the women members) motherhood insurance. A large number of congress members demanded improvements in working conditions from the hygienic point of view, including abolition of night work and home work. The northern representatives of the "open-door system" were equally energetic in their opposition to all such prohibitions. Frau Dr. Krüger of Dresden formulated the thesis that women are not better than men nor worse than men but that, being different from men, they require special protection, or, as the Italian physicians expressed themselves, the southern women cannot work so hard as northern women, for which reason they, at least, need protective laws. Dr. Balfour called attention to the fact that 250,000 women spinners in India work hard for from twelve to fourteen hours, without apparent injury; Dr. Adamson mentioned that, during the war, women in many countries did all kinds of "man's work," even working on night shifts, without any perceptible damage to their health.

The congress adopted several resolutions, in which the women physicians demanded the supervision of labor by specially trained physicians (male or female), a course in industrial hygiene obligatory for medical students, a far-reaching control of piece work done in the home, equal pay for equal work for men and women, and, finally, the appointment of a study committee looking toward the improvement of health conditions in tropical countries.

TURKEY

(From Our Regular Correspondent)

Ankara, Sept. 25, 1931.

The Importation of Mineral Waters

According to the general public health law, mineral waters for which permission to import has not been procured from the ministry of health and social assistance are not allowed to pass the customs unless there is evidence that such goods were shipped before April 1. Importers must therefore apply to the ministry for permission to import mineral waters which they have been importing, as well as for waters which they intend to import in the future.

Their applications must indicate (1) the commercial name of the mineral water and whether it is natural or artificial, and if natural whether any chemical has been added and, if so, the kind and amount of the chemical; (2) the name of the spring from which the water is taken, the name of the laboratory where it is prepared for sale and the name of the person in charge of the laboratory; (3) the wholesale and retail price of the water; (4) whether it is a mineral water that formerly has been imported and, if so, the date of its first import. The application should be accompanied by (1) official proof verified by a Turkish consulate that the mineral water in the country of its origin is by governmental permission sold there as a mineral water and under the same name; (2) a report of the analysis of the mineral water issued by a governmental and duly authorized laboratory of the country from which the mineral water is coming; (3) two samples each of the bottles and of the wrapping paper and labels or advertisement which may accompany the wrapping paper.

Emetine Provided by the State

In the southern provinces, amebic dysentery has lately been on the increase. The effective treatment of the disease there is largely prevented or retarded by the fact that, in comparison with the meager income of the natives, emetine there is expensive. The ministry of health and social assistance has therefore ordered the preparation of ampules of emetine for the gratuitous treatment of the indigent. The southern provinces became infected through the movement of troops and prisoners, among whom amebic dysentery epidemics occurred during the World War.

Control and Prevention of Syphilis

Of all health problems, the control of syphilis ranks second in importance. Special emphasis is being given, therefore, to the organization of a campaign. The public health law requires all health officers and physicians in the service of a municipality to give free care to persons applying who suffer from either syphilis or gonorrhea, regardless of their income, until they are cured or rendered permanently noninfectious. These physicians are also required to give free medical care to any person suffering from venereal disease who has not applied for treatment but with whom in their professional work they come in contact; also to supervise disorderly houses and to give treatment to their inmates.

The ministry of health and social assistance organized its first syphilis and antivenereal campaign in 1925 in the provinces of Sivas and Bursa, which are considered heavily infected areas. Next a unit was organized in Ordu in Duzce and in Carsanba. The staff of a unit consists of a specialist who directs the laboratory, five specialists, one technician, one secretary, twelve sanitary inspectors and seven orderlies. Neoarsphenamine compounds of mercury and of bismuth, and all other medicaments are supplied free by the government. The expense incurred by syhilis and antivenereal work of the provincial and municipal health departments is to be covered by means of their special budget set aside each year for this purpose. The method of treatment is a routine one. The Wassermann, Meinicke, Sachs-Georgi and Kahn tests are made in suspected cases. Because of its advantages especially in rural communities, it would be feasible to make the Kahn test the standard.

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According to statistics, the number of infected persons under treatment in all provinces for the year 1926 was 82,537 (44,013 women and 38,524 men); for 1927, 82,626 persons (42,904 women and 39,722 men); for 1928, 92,051 persons (48,135 women and 43,916 men); in 1929, 97,536 persons (48,784 women and 46,752 men).

Disorderly houses were tolerated until 1930. Heretofore disorderly houses and their inmates have been under the supervision of the municipal health departments. In 1927 there were in Istanbul 110 disorderly houses; 21 were ordered closed but they were replaced soon by 20 new ones. During the year 1927 there were in Istanbul 1,678 persons, of whom 993 were women and 685 men, under treatment at provincial and municipal departments. In 1930, the ministry of the interior ordered all disorderly houses closed and persons found guilty of enticing girls or women into prostitution deported if their nationality is other than Turkish.

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John Whitridge Williams, M.D.,
1866-1931

The outstanding character of his leadership in the field of obstetrics was everywhere recognized. The honorary D.Sc. was conferred on him by the University of Maryland in 1907 and by the University of Dublin, Ireland, in 1912. In 1915 he received the honorary LL.D. of the University of Pittsburgh. Dr. Williams was a member of the American Gynecological Society, serving as president, 1913-1914; he was a fellow of the American College of Surgeons, and president, 1914-1916, of the American Association for the Study and Prevention of Infant Mortality. He had been president of the Medical and Chirurgical Faculty of Maryland for 1915-1916. He was also corresponding member or fellow of most foreign obstetric organizations.

Dr. Williams was especially noted for his share in the advancement of obstetrics as a specialty. His Textbook of Obstetrics, appearing in 1903, had reached a sixth edition in 1930. To Siebold's history of obstetrics he had contributed a supplement on the history of obstetrics in America. Under his guidance many teachers of obstetrics were developed who are now professors of obstetrics in other American medical schools. He himself contributed notably to obstetric research, the most recent work appearing in The Journal in August of this year. Especially noteworthy were his researches on anatomy, pathology and bacteriology of the female generative tract; etiology of eclampsia and toxemia; development and diseases of the human placenta; puerperal infection; metabolism and physiology of pregnancy; and syphilis in relation to obstetrics. In his passing the specialty to which he devoted himself so sincerely and earnestly loses an idealistic leader, the great campaign for *prenatal* care and the lowering of maternal mortality a distinguished veteran.

Emil Mayer ⊕ New York; Medical Department of the University of the City of New York, 1877; chairman of the Section on Laryngology and Otology, 1898-1899, American Medical Association, and member of the House of Delegates, 1902 and 1921; member and past president of the American Academy of Ophthalmology and Oto-Laryngology; past president of the American Laryngological Association; surgeon and chief of clinic, throat department of the New York Eye and Ear Infirmary, 1893-1904; representative for the U. S. Medical Intelligence Bureau; for eight years chairman of the Committee for the Study of Toxic Effects of Local Anesthetics, under the auspices of the Council on Pharmacy and Chemistry, which has made noteworthy reports on fatalities from local societies, the transactions were opened with a paper by Madame Dr. Balfour on "The Condition of Women in India." The work of the congress covered two main topics: (1) the rôle of the woman physician in tropical countries, and (2) the legal protection of women workers from the sociohygienic point of view. Dr. Balfour discussed the evils to which women of India are exposed because of unenlightened religious customs, showing that often severe bodily injuries are traceable to religious observances. The woman physician plays an important part in combating such injuries. Madame Dr. Penell, a native of India, and Madame Dr. Dengel, a physician and missionary from the Punjab, described the lamentable situation of the women of India, and of Asiatic women in general; likewise, Madame Dr. Benson and Madame Butler-Adamson, two Anglo-Indians, outlined the sanitary conditions in India. They pointed out that the activities of the women in the hospitals in India are irreplaceable, since only British army physicians are otherwise to be found, to whom a native woman is reluctant to apply for medical aid. From the Congo region the congress received reliable accounts through Madame Dr. Rami, a Swiss physician, who described the poorly organized health service in this region, so far as women are concerned. Madame Dr. Jettmar reported from China that the League of Nations, in cooperation with the Chinese government, had created in recent years an organization that is promoting school hygiene and welfare work among infants, children and mothers. From Batavia Madame Dr. Van Made announced that the natives, and especially the women, are eager to take a course of treatment with arsphenamine, because the whole population has learned the good effects of such treatment in various diseases endemic in Java and in the archipelago in general. While serving as government physician, it had been her duty to travel through the country, on which journeys she would give upward of 200 injections of arsphenamine, and likewise inoculations against typhoid, cholera and smallpox. Reports from Algeria were presented by Madame Dr. Poli-Garnier and Madame Dr. Thuillier-Landry, who pointed out the many grave hygienic dangers incurred by women in that country.

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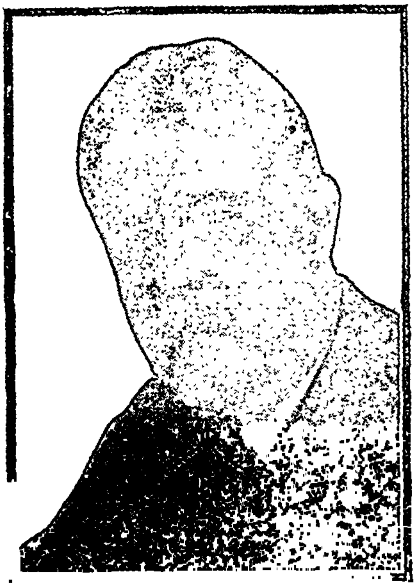
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Donald B. Pritchard ⊕ Winona, Minn.; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1887; member of the American College of Surgeons; past president of the Winona County Medical Society; for many years city health officer; for four years president of the board of education; aged 66; chief of staff of the Winona General Hospital, where he died, September 21, of pneumonia and cerebral hemorrhage.

Stephen Grover Burnett ⊕ Kansas City, Mo.; Kansas City Medical College, 1885; Medical Department of the University of the City of New York, 1886; at one time professor of nervous and mental diseases, University Medical College of Kansas City; formerly consulting alienist and neurologist to St. Margaret's Hospital, Kansas City, Kan.; aged 69; died, September 11, in St. Joseph's Hospital, of encephalomalacia.

William E. McVey ⊕ Topeka, Kan.; Kansas City Medical College, 1888; professor of diseases of the nose, throat and chest, 1892-1913, and dean, 1909-1913, Kansas Medical College, Medical Department of Washburn College; secretary, 1896-1903, president, 1903-1904, Kansas Medical Society; since 1914 editor of the *Journal of the Kansas Medical Society;* aged 67; died, October 21.

Joseph Brown Farrior ⊕ Tampa, Fla.; Tulane University of Louisiana Medical Department, New Orleans, 1905; member of the American Academy of Ophthalmology and Oto-Laryngology; past president of the Hillsborough County Medical Society; on the staff of the Tampa Municipal Hospital; aged 50; died, October 3, of carcinoma of the stomach with metastasis.

Arthur Lyman Fisk, New York; Harvard University Medical School, Boston, 1889; formerly attending surgeon to the Trinity and Floating hospitals, New York, Seaside Hospital, New Dorp, Staten Island, consulting surgeon to the New Rochelle (N. Y.) Hospital and the Somerset Hospital, Somerville, N. J.; aged 71; died, October 9.

John Joseph Dunphy ⊕ Boston; Harvard University Medical School, Boston, 1921; member of the New England Pediatric Society; on the staffs of the Massachusetts General Hospital, St. Elizabeth's Hospital and the Boston City Hospital; aged 36; died, October 12, of complications, following an operation for appendicitis.

Thompson Frazer ⊕ Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the American College of Physicians and the American Climatological and Clinical Association; served during the World War; aged 54; died suddenly, October 9, of cerebral hemorrhage.

Edward Alexander Florentine ⊕ Ewen, Mich.; Saginaw (Mich.) Valley Medical College, 1899; past president of the Ontonagon County Medical Society; served during the World War; aged 53; died, September 29, of injuries received in an automobile accident.

George W. Squires, Avon, N. Y.; University of Buffalo School of Medicine, 1883; member of the Medical Society of the State of New York; for thirty years health officer and for two years coroner; aged 73; died suddenly, September 26, of heart disease.

Robert Hadden Hale, York, Ala.; Louisville (Ky.) Medical College, 1879; member of the Medical Association of the State of Alabama; past president of the Sumter County Medical Society; aged 81; died, October 2, of cardiorenal disease.

George Sheridan Culver, Sandwich, Ill.; Hahnemann Medical College and Hospital, Chicago, 1893; member of the Illinois State Medical Society; formerly mayor of Sandwich; aged 64; died, September 29, of heart disease.

Francis Page Nelson, Crozet, Va.; Medical College of Virginia, Richmond, 1914; member of the Medical Society of Virginia; served during the World War; aged 44; died suddenly, September 24, of heart disease.

Robert Harrison Johnson, Gretna, La.; Memphis (Tenn.) Hospital Medical College, 1904; aged 59; died, September 19, at the Southern Baptist Hospital, New Orleans, of gastric ulcer with hemorrhage and acute nephritis.

Edward H. Bell, Gwynedd Valley, Pa.; Jefferson Medical College of Philadelphia, 1875; member of the Medical Society of the State of Pennsylvania; aged 82; died, July 28, of cerebral hemorrhage and arteriosclerosis.

Felix Hood Craddock, Sylacauga, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; member of the Medical Association of the State of Alabama; aged 65; died, October 6, of arteriosclerosis.

Edward O. Hanlon, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1893; formerly bank president; aged 62; died, September 20, in the California Lutheran Hospital, of intestinal obstruction.

Samuel Shattuck Ellis, Buffalo; Harvard University Medical School, Boston, 1928; assistant resident to the Presbyterian Hospital, New York; aged 28; was killed, September 27, in an airplane accident.

Henry L. Hayes, San Francisco; Georgetown University School of Medicine, Washington, D. C., 1890; served during the World War; aged 64; died, September 19, in Monterey, Calif., of angina pectoris.

Duran Shepard Cossitt, Conneaut, Ohio; Western Reserve University Medical Department, Cleveland, 1892; member of the Ohio State Medical Association; aged 65; died, October 8, of heart disease.

Clarence Golden Stigall ⊕ San Diego, Calif.; University of Louisville (Ky.) School of Medicine, 1907; aged 45; was found dead in his garage, September 17, of carbon monoxide poisoning.

Herman E. Levin, Lomira, Wis.; Milwaukee Medical College, 1904; aged 52; died, October 2, in St. Agnes' Hospital, Fond du Lac, of intestinal obstruction and carcinoma of the bowel.

Renfred Eastlake Doidge, Perry, Iowa; Rush Medical College, Chicago, 1897; member of the Iowa State Medical Society; aged 69; died, September 19, of carcinoma of the lungs.

Hastings Wyman, Jr., Aiken, S. C.; University of Georgia Medical Department, Augusta, 1902; formerly member of the city council; aged 52; died, September 13, of angina pectoris.

Robert Jacob Baxter, Conneaut, Ohio; Niagara University Medical Department, 1894; for eight years postmaster of Conneaut; aged 64; died, September 30, of cerebral hemorrhage.

William Henry Yandell, Piedmont, Kan.; Louisville (Ky.) Medical College, 1901; aged 61; died, September 4, in a hospital at Wichita, of arteriosclerosis, myocarditis and nephritis.

Chauncey L. Barber, Lansing, Mich.; College of Physicians and Surgeons, Chicago, 1884; served during the World War; aged 73; died suddenly, September 30, of heart disease.

Hanson Smiley Gifford, Tipton, Ind.; State College of Physicians and Surgeons, Indianapolis, 1907; served during the World War; aged 49; died, September 24, of angina pectoris.

John Marcus Dunsmoor, Los Angeles; University of Southern California School of Medicine, Los Angeles, 1900; aged 76; died suddenly, September 19, of heart disease.

Jacob L. O'Dell, Pratt, Kan. (licensed, Kansas, 1918); aged 79; died, July 31, in a hospital at Wichita, of chronic endocarditis, with aortic and mitral insufficiency.

Henry W. Wolfe, Tamaroa, Ill.; Barnes Medical College, St. Louis, 1898; member of the Illinois State Medical Society; aged 61; died, September 18, of heart disease.

R. Bartow Read, New York; Columbia University College of Physicians and Surgeons, New York, 1928; aged 33; was killed, September 27, in an airplane accident.

Solomon Ellis Feinberg, New York; Medical Department of the University of the City of New York, 1892; aged 70; died, September 12, of coronary thrombosis.

Horace Bertram Wilson, San Francisco; St. Louis University School of Medicine, 1923; aged 34; died, September 20, of pulmonary tuberculosis and myocarditis.

Edgar Jay Marsh, Oswego, N. Y.; Eclectic Medical Institute, Cincinnati, 1879; aged 81; died, September 15, of hypostatic pneumonia, following a fractured hip.

Jesse George Holmes ⊕ Alamogordo, N. M.; Northwestern University Medical School, Chicago, 1904; aged 54; died, September 28, of chronic myocarditis.

John C. Rudolph, Lawrence, Kan.; Maryland Medical College, Baltimore, 1900; aged 69; died, September 11, of carcinoma of the stomach and duodenum.

J. Sherman Pope, St. Louis; Barnes Medical College, St. Louis, 1904; aged 61; was found dead, October 12, of a self-inflicted knife wound in his side.

A. Clifford Crusselle, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897; aged 55; died, September 23, of heart disease.

James R. Scott, Malvern, Iowa; Hahnemann Medical College and Hospital, Chicago, 1885; aged 72; died, September 19, of a self-inflicted bullet wound.

John H. Fibbe, Toledo, Ohio; Starling Medical College, Columbus, 1882; aged 74; was found dead, October 7, of cerebral hemorrhage.

Correspondence

GOLDSTEIN'S HEREDOFAMILIAL ANGIOMATOSIS, WITH FAMILIAL RECURRING HEMORRHAGES

To the Editor:—It may be of interest to note since publication of a brief note on "Rendu-Osler-Weber's Disease" in The Journal, March 14, p. 887, that C. W. Bottema of Holland, Ullmann of Vienna, Földvári of Budapest, Fitz-Hugh of Philadelphia, Hicks and Knox of New York, and I have recently reported seeing such cases. I have been informed by Jackson of Camden and by Yajuzian of Trenton, N. J., that they have each seen one such case, recently. This condition—heredofamilial telangiectasia, hemorrhagic—must be definitely separated from the other hemorrhagic diseases. With the exception of a secondary anemia, the blood is not at all at fault. Bleeding and clotting time, platelets, fragility, clot retraction, and so on, are all normal. The blood elements are normal except for some poor staining. Blood calcium may at times be found to be below normal. The clinical entity here discussed is primarily one of hereditary defective vascular (and capillary) development affecting both sexes and transmitted by both sexes. It is not to be confused with the various primary and secondary anemias, leukemias, hypertensive epistaxis, hemophilia, pseudohemophilia, thrombopenic purpura, hereditary familial thrombasthenia, P. Emile-Weil's "hemogenia," "pseudohämophilia ex afibrinogenia" (Opitz and Frei), Rayer's haemacelinosis, Glanzmann's thrombasthenia, and the deficiency diseases. I recently saw a case with Dr. Sussmann at the Sinai Hospital, Baltimore. Eighteen or nineteen members of the family were similarly affected.

Hyman I. Goldstein, M.D., Camden, N. J.

"SIGMOSCOPE" FOR "SIGMOIDOSCOPE"

To the Editor:—For a number of years the terms "Prokto-Sigmoskop" and "Prokto-Sigmoskopie" have been used by Strauss of Berlin. The first use of this term in a title by this author was in 1909 (Beiträge zur Sigmoskopie, *Berl. klin. Wchnschr.* **46**:146, 1909; Ueber Indikationen und Kontraindikationen der Sigmoskopie, *Deutsche med. Wchnschr.* **35**:2101, 1909). This usage has suggested the introduction of the terms "sigmoscope" and "sigmoscopy" for our own use when referring to the sigmoidoscope and the examination of the rectosigmoidal region.

The word "sigmoid" is, of course, derived from the Greek letter sigma, the suffix "-oid" being added to denote that the part of the colon referred to is sigma, or S, shaped. Nevertheless, there seems to be no overwhelmingly good reason why this extra syllable should be retained in developing a word to designate the instrument for examining this region.

In modifying the word "proctodeum," the extra syllable has been dropped to form the more convenient words "prostoscope" and "proctoscopy." While it is understood that the word "proctodeum" has been derived from the Greek "proktos," meaning anus, and that the prefix "procto-" is given as the combining form, thus making "proctoscope" philologically correct, it is felt that there would not be a very great breach of philological practice if the extra syllable were to be dropped from "sigmoidoscope."

The particular reason for suggesting this change is that the terms "sigmoidoscope" and "sigmoidoscopy" are extremely awkward to use. In consequence, when referring to rectosigmoidal examinations, most physicians, and many proctologists, refer to this form of procedure as "proctoscopy." It is felt that this often leads to a neglect of thorough examination of the lower sigmoidal region and in many cases results in overlooking serious lesions which might otherwise be discovered. The use of the word "sigmoidoscope," especially as a verb, is particularly awkward, and there is great temptation to substitute "proctoscope."

It is well known that the Germans are not accustomed to dropping syllables from their words—in fact, it is generally believed that they usually leave each syllable which is necessary to denote the etiology of the word. The fact that Strauss has persisted in using the word "Sigmoskopie" for over twenty years (Ueber Indikationen und Kontraindikationen der Sigmoskopie, *Cong. Internat. de Méd. C.-r.*, Budapest, sect. 6, Med. Int., 1910, p. 639; Die Prokto-Sigmoskopie und ihre Bedeutung für die Diagnostik und Therapie der Krankheiten des Rektum und des Sigmoideum, ed. 2, Leipzig, Georg Thieme, 1930) and that other German authors have adopted it (Münzer, E.: Ein modifiziertes Sigmoskop, *Arch. f. Verdauungskr.* **21**:363, 1915. Rehn, E.: Fortschritte in der Rektoskopie und Sigmoskopie, *Zentralbl. f. Chir.* **48**:1588, 1921) to the exclusion of the older forms, i. e., sigmoidoskopie, romanoskopie, plainly demonstrates that these proctologists have found the use of the older forms clumsy and prefer the shorter but equally expressive words.

It is felt that the use of the terms sigmoscope and sigmoscopy in the English proctologic literature and practice will help to impress on the profession in general the possibility of this form of examination and the great necessity for it.

Simon B. Kleiner, M.D., New Haven, Conn.
Clinical Instructor in Proctology,
Yale University School of Medicine.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DEGENERATIVE DISEASE OF THE CENTRAL NERVOUS SYSTEM

To the Editor:—I will appreciate your help with the following: A white woman, aged 40, a farmer's wife, delivered five normal, healthy, living children. About three years ago she delivered her sixth child, which was apparently normal at birth. When a week or 10 days old, it did not cry as loud as it should and movements of the hands, arms and legs were weak. Examination at this time showed the baby to have general flaccid paralysis, although it was normal otherwise. The paralysis gradually grew worse, the muscles were atrophied, and the child died at 4 months of age. A year after the birth of this child another baby was born and the same symptoms were evident. The baby died about the third month. About seven months ago the mother delivered another baby—her eighth. I examined this baby closely at birth. It was perfectly normal and weighed 7½ pounds (3.4 Kg.). About a week or ten days after birth there was weakening of all voluntary movements. This progressed until the second month, when it could not use its arms or legs, although there was some movement of the toes and fingers. There was not much atrophy and the child had continued to grow. Its condition remained stationary for three weeks, when it started to improve, until the fourth month, when its movements were about half as active as they should have been. The baby's condition remained about the same until about the sixth month, when it began to grow worse. Now, at the end of the seventh month, it cannot move either hand or leg, there is some atrophy, and it weighs 15 pounds (6.8 Kg.). While this baby has lived three months longer than either of the others, it is growing worse. None of these babies were delivered with forceps, all deliveries being easy and normal. The family history is negative; there is no sign of syphilis. The only thing to be found on examination is the general flaccid paralysis, all reflexes being lost. Please omit name.

M.D., South Carolina.

Answer.—These cases seem to be examples of degenerative disease of the central nervous system. The fact that the infants were capable of movement and appeared normal at birth according to the examining physician, who was on the alert for signs at birth, indicates that the motor pathways were intact; namely, nucleus, nerve pathway, anterior horn cell, nerve and muscle. Flaccidity practically excludes an upper motor neuron involvement. Nuclear degeneration, which these patients illustrate, occurs in the Werdnig-Hoffmann type of paralysis. In this condition there is degeneration of all anterior horn cells with consequent paralysis, flaccidity and atrophy. It usually occurs at the end of the first year and is rapidly and progressively fatal. The hands and feet are less completely involved. This finding is mentioned specifically in the third patient. It is markedly hereditary and is said to occur in several children in the same family, often in several generations. The child seems normal until the onset of the disorder, which leaves the sensorium intact. Death is usually respiratory.

Another condition to be considered is Oppenheim's congenital myotonia, in which generalized flaccid paralysis may develop shortly after birth. Here, too, reflexes are absent while sensation is present. Nutrition is not markedly disturbed. Some children seem fat. Although the lesion is chiefly in the muscle, there is also failure in the development of the anterior horn cells. Death usually results from intercurrent infection. The disease is not usually familial.

Some authorities believe that both the Werdnig-Hoffmann and the Oppenheim type of paralysis are different clinical types of the same disease process. In the patients described, elements of both entities are present. The rapid course, familial involvement, progression of the disease and lesser involvement of the toes and fingers point to the Werdnig-Hoffmann type. The appearance of symptoms almost at birth with paralysis are found in the Oppenheim type. The only specific weight mentioned, namely, 15 pounds at 7 months in the case of the third child, does not spell marked atrophy. The reaction of degeneration would more definitely point to the former condition. Necropsy might have elucidated the nature of the pathologic process.

TOXICITY OF GASOLINE

To the Editor:—In the course of daily practice I see a good deal of anginoidal attacks in workers handling gasoline. I have had several cases in young men between the ages of 25 and 35, who complained of precordial pain and gave all the symptoms and manifestations of either true angina or pseudo-angina, one case resulting in death. All these patients are actively engaged in the handling of gasoline and I would be pleased to have you inform me of the possibility of a hydrocarbon poisoning producing these spells. I will appreciate your personal advice and knowledge of this matter and ask that you cite literature on the subject.

J. C. May, M.D., Perryton, Texas.

Answer.—Extensive exposure to the vapors of gasoline (petroleum naphtha) may eventuate in (*a*) acute gasoline poisoning, commonly termed a "naphtha jag," which resembles the excitement stage of early ethyl alcohol intoxication; (*b*) chronic naphtha poisoning, which resembles disseminated sclerosis more than any other well known neurologic entity. In addition there are certain evidences of other systemic damage from the naphtha, such as hepatitis (icterus, bile pigments in urine) and anemia. Early in the chronic form a leukopenia may exist, but this is transient. In neither form of intoxication are anginal attacks a regular feature, and certainly this manifestation is not likely to arise as the sole or principal feature in a series of cases. However, as one manifestation, anginal attacks may occur in some instances, constituting evidence of injury to the cardiac musculature. Anginal attacks at best are a possibility rather than a probability following exposure to gasoline.

A full discussion of the toxicity of gasoline was given by O. M. Spencer in an article entitled "The Effect of Gasoline Fumes" in *Public Health Reports* **37**:2291 (Sept. 22) 1922.

ANGINA PECTORIS

To the Editor:—In what percentage of cases is angina pectoris hereditary? A patient previously apparently well, except for slight cyanosis and slight dyspnea, aged 70, accidentally ran a rusty nail into his foot. The puncture wound was opened freely and cauterized, and 1,500 units of antitetanic serum given. Between forty-eight and fifty-five hours later the patient developed severe anginal attacks—the first attack coming on while sleeping in a chair and the attacks continuing off and on for four weeks, at which time a severe attack, requiring about 1½ grains of morphine during twelve hours to control pain, occurred. Symptoms of coronary occlusion and heart block developed and the patient died within forty-eight hours following this last attack, although he was free from pain during the last twenty-four hours. Previous to this, 1/100 grain of glyceryl trinitrate gave relief in a few seconds. Do you think there was any connection between the administration of the antitetanic serum and the development of the heart trouble (anginal attacks)? No postmortem was done. There were no signs of anaphylactic shock following injection of serum. Please omit name.

M.D., Michigan.

Answer.—It is impossible to say in what percentage of cases angina pectoris is hereditary. There is considerable evidence to indicate that there is an hereditary tendency, but this is not considered as conclusive by all authors.

In the case cited it is impossible to state that the antitetanic serum did or did not cause the attack of angina. So far as we know, the serum does not produce such attacks. The fact that there was no anaphylactic shock following the injection may justly be urged as an argument against the connection of the use of the serum and the anginal pain. The more likely explanation is, as suggested in the letter, that a coronary thrombus formed and that the succeeding manifestations of heart block, anginal pain, etc., were due to this and that the relation between the use of the serum and the cardiac symptoms was purely an accidental one.

The autonomic system probably plays a much more important part not only in angina pectoris but also in coronary thrombosis than has been supposed; unfortunately, how large or how small a part cannot be proved. It is known not only that the caliber of the coronary vessels can be altered by autonomic stimuli but also that the blood chemistry can be altered, the ratio of protein constituents changed, and the coagulation altered by these stimuli. The response to a foreign protein might have instituted abnormal autonomic stimuli, with a chain of events predisposing to the coronary thrombosis. Or the patient might easily have had the thrombosis had the accident not occurred. No one knows, but it affords an opportunity for interesting speculation.

PIGMENTATION OF SKIN

To the Editor:—My niece is 12 years of age, 63 inches (160 cm.) in height and weighs 108 pounds (49 Kg.). She has been menstruating a little over a year. The periods are regular and free from pain but the blood is very free. The bowels are regular, the urine is normal and the general health is fine. Since last January there has been developing across her back, on the shoulders and upper arms and on the hips, a dark pigmentation. This is so unsightly that the family is much distressed over it. Can you give me some help as to the etiology and treatment of this trouble? Is it likely there is some endocrine disturbance causing it? Please omit name.

M.D., Louisiana.

Answer.—Pigmentation of the back, shoulders, the upper part of the arms and the hips may be due to a variety of causes. It may be a melanosis from arsenic taken internally, ingested in the food or absorbed from wall paper. Localized melanodermia may also be caused by disorders of the endocrine glands, the female generative organs or lesions of the chromaffin system. The distribution of the pigment does not appear to be that commonly observed in Addison's disease or in acanthosis nigricans. No treatment can be suggested without additional clinical and laboratory data and a more careful study of the etiology.

EPILEPSY AND INFECTION

To the Editor:—A boy now 4 years old began to have epileptiform seizures in November, 1929, when 2 years old. In July, 1929, he fell and struck hard on his forehead. He has continued to have attacks, both major and minor, sometimes several attacks. He had various treatments, including the high ketone diet. May 1, 1930, he contracted a "hard cold" with cough and the family physician said that he had "congestion of the tubes." With this condition he had a temperature over 102 F. for some time but just how long is not known. Following recovery the child had no more convulsions until Sept. 30, 1930, nearly six months. Since that time the attacks have continued, though not quite as frequently. Is there any relation between a fever and the disappearance of the attacks for some time? If so, has any work been done along this line?

Arthur B. Davenport, M.D., Tunkhannock, Pa.

Answer.—The cessation of epileptic seizures during and following infectious diseases has been reported many times. Occasionally a permanent disappearance of the fits has been noted, but usually the improvement is temporary. Identical intermissions have been noted in connection with shocks and insults of various kinds and it is common knowledge that admission to a hospital, without other change of regimen, will sometimes be associated with a temporary diminution in the number of fits. It is of interest also that one of the older methods of treatment in epilepsy, now discarded, consisted in the introduction of a seton under the skin with the purpose of inducing local suppuration.

USE OF DIPHTHERIA TOXOID

To the Editor:—I have in mind three children to whom I intend to give diphtheria anatoxin; two have had quite severe eczemas and still have small patches present. One child is 2 years old and the other about 3½. Should skin tests for susceptibility be made before giving the anatoxin or is anatoxin to be considered harmless from the standpoint of protein reaction? Are three separate doses to be recommended, or are two sufficient? If three doses are better, what company puts out a three dose package? Please use initials only.

L. B., M.D., Los Angeles.

Answer.—Children of 7 years or younger may be given diphtheria toxoid (anatoxin) in full doses without local or general reactions, except in rare instances. Such reactions are only unpleasant, never dangerous. Skin conditions, such as the eczemas, should not interfere with toxoid immunization since toxoid does not contain proteins likely to sensitize or shock.

Two doses of 1 cc. each with an interval of one month are usually sufficient to immunize susceptible subjects.

POSSIBILITY OF MALIGNANT CHANGE IN MOLES

To the Editor:—What is the likelihood of a nevus becoming a melanotic sarcoma? Is it a fact that a nevus that is constantly irritated by the rub of clothing on the back is more likely to change into this malignant type rather than one situated at some other place? Is it the proper procedure to excise a nevus when there is no indication of any malignant changes by the use of endothermy? Is it a common practice among physicians to have a pathologic examination made of a nevus that has been removed, when only ordinary office procedures are required, and when there is no indication of cancerous changes? Is it characteristic of a nevus with sarcomatous changes to produce metastasis rapidly accompanied by high fever, severe pain and aching six weeks after the excision of the nevus, and healing of the wound by primary union? Please omit name.

M.D., Alabama.

Answer.—There is always danger that a mole or nevus may become the point of origin of a highly malignant and widely spread tumor, now known most frequently as melanoma. Injury of a mole or "irritation" by clothing or otherwise favors the development of melanoma. To excise a mole in which there is no indication of malignant change by endothermy or otherwise is a proper procedure provided the excision is complete and includes a comparatively wide zone of the healthy tissue around the mole. Melanomas develop not infrequently after incomplete extirpation or other meddlesome treatment of moles. How commonly microscopic examination is made of moles removed under "ordinary office procedures" in cases in which there is no indication of malignant change cannot be stated, but many physicians would like to know whether such moles are in a quiet state or show signs of abnormal cell multiplication. Rapid and extensive metastasis may follow the excision of a mole, even if the wound has healed perfectly, and the possibility that high fever and other general symptoms may develop in such cases from some form of associated intoxication cannot be excluded.

USE OF CONTACT LENSES

To the Editor:—I wish to obtain information regarding contact lenses, with especial reference to their use in a case of keratoconus. Can you tell me whether they are made in this country, and where they may be obtained? Can they, as a rule, be worn by the average patient with comfort? What is their effect in stopping or retarding the progressive stretching of the cornea in keratoconus? Can you give me a rough idea of their cost? I read an article a few months ago in a medical magazine which I have mislaid, and the name of which I cannot recall, that they were now being made in New York. If that is so, can they be obtained in Chicago, or any Western city?

William Bussey, M.D., Eagle Pass, Texas.

Answer.—Contact glasses are not made in this country. The ground contact glass is made by Carl Zeiss of Jena, Germany, and the blown contact glass by Mueller of Wiesbaden, Germany. The former can be obtained from any Zeiss agency in the United States. The length of time that a contact glass can be worn varies with the individual wearer, some not more than half an hour and others up to ten or twelve hours. Again, some individuals can wear a ground contact glass with perfect comfort and not a blown glass, while others prefer the blown glass. Optically, the ground glass is more accurate, but from the standpoint of comfort the blown glass is preferred by many. It is not believed that the continuous use of a contact glass prevents the advance of corneal stretching in keratoconus, as the purpose of the glass is merely to eliminate the refraction of the irregular anterior surface of the cornea. The retail cost of the glass is around $20.

CONGENITAL SYPHILIS

To the Editor:—About three months ago a youth, aged 19, presented himself for treatment for congenital syphilis, stating that his grandfather had paralysis agitans and his mother had always had something wrong with her and was at present losing her mind. His mother had been treated for syphilis two years before for a short time on account of a positive spinal fluid examination. The boy has had several blood Wassermann tests with negative results and while he is not considered bright he has done well in school. He has no complaints and no symptoms, except some burning sensations of the eyes. He will not subject himself to any more blood examinations and "will not have any spinal fluid examined until the doctor has given him what he thinks would ordinarily cure syphilis." Physical examination is essentially negative. I would appreciate it if you can give me some idea of how syphilis would affect this boy of probably the third generation and what course of treatment, if any, would be indicated. Please omit name.

M.D., West Virginia.

Answer.—As this youth apparently has a syphilitic mother, it seems more probable that if he is prenatally syphilitic he ranks as a second generation rather than a third generation case. So far as one can see from the description, no evidence is presented to prove that he is even prenatally syphilitic, for he has been repeatedly serologically negative, has no complaints, there are no symptoms, and the physical examination is essentially negative. Unless a reasonable presumption of prenatal syphilitic infection can be established, treatment for syphilis would have to be regarded as a therapeutic test for improving his mental status or as an order over the bar for "shots" emanating from the patient himself. A spinal fluid examination might throw some further light on the situation but at the age of 19, with repeatedly negative blood serologic tests, it seems improbable that an abnormal spinal fluid would appear.

Emphasis should be laid on the question of negative physical examination. The stigmas of prenatal syphilis are sometimes overlooked in routine physical examination and evaluation of suggestive but not presumptive or definitive signs of prenatal syphilis, such as the facies, may be impossible without expert assistance.

In the absence of any evidence in the patient himself of the presence of a syphilitic infection and in view of his unwillingness to repose confidence in his medical advisers by submitting to a complete study, it would seem that treatment for syphilis should be withheld unless one wishes to proceed blindly and without proper control of the case to administer two or three courses of a preparation of bismuth.

KLINE TEST IN SYPHILIS

To the Editor:—I should like to ask you for some information about the value of the Kline test in syphilis.

Jorge E. Cavelier, M.D., Bogota, Colombia.

Answer.—The original Kline test was an adaptation of the Kahn test to a microscopic slide precipitation method. Some years ago Kline abandoned Kahn's antigen and developed a series of microscopic tests. In a recent summary (*Brit. J. Ven. Dis.* **7**:32 [Jan.] 1931), Kline describes tests with unheated serum, heated serum and defibrinated finger blood, and, in addition, highly sensitive "exclusion" (of syphilis) tests and spinal fluid procedures. The Kline test referred to in the literature is generally the one with heated serum. T. H. Miller reports from the clinic of Dr. Stokes in Philadelphia (*Am. J. Syph.* **13**:583 [Oct.] 1929) that this test is more sensitive than the Kahn test and the Kolmer Wassermann and that it gives "a higher percentage of false positive reactions" than either of the two tests. More recently Chargin and Rosenthal have reported from the Venereal Disease Service of the New York department of health (*Am. J. Syph.* **15**:405 [July] 1931), in their study of the Kline test in primary syphilis, an "appreciable number of false positives." It is evident that there is some question as to the specificity of this test. It is, however, being used in some laboratories as a check on the Wassermann or the Kahn test.

CONTINUED USE OF EPHEDRINE IN HAY FEVER

To the Editor:—As a severe sufferer from seasonal hay fever, I should like to ask about the possible harmful effects of continued use of ephedrine hydrochloride. Advertising literature recommends the use of this drug in doses of three-eighths grain, two to three times daily. When I do this I am quite free of symptoms, but until the effect wears off I experience the usual heart consciousness, fast pulse, and so on. Is there to your knowledge any danger of a cardiac hypertrophy in a season's time, from using ephedrine hydrochloride in this amount (about a grain a day)? Discussion has failed to settle the point and many acquaintances think there is danger.

L. Y. Dyrenforth, M.D., Chicago.

Answer.—So far as we are aware, using three-eighths grain (0.024 Gm.) of ephedrine hydrochloride twice a day during the hay fever season does not cause any serious symptoms in the patient. Some people are more susceptible to ephedrine than others and develop a rapid pulse. The dose mentioned seems beneficial without any deleterious effects.

TYPHOID IMMUNIZATION

To the Editor:—A few days ago a physician made the statement that typhoid vaccine given annually for three years would immunize for life. Is this correct? Also, he stated that people over 45 years of age should not take typhoid vaccine, or rather that it was not necessary for them to take it. Please advise. What percentage of people are rendered immune to typhoid after taking the vaccine and for how long?

Clayton Shirley, M.D., Tyler, Texas.

Answer.—While it is not known that typhoid vaccination each year for three years will immunize completely for life, it would be reasonable to assume that a person so treated will be well protected against natural infection from typhoid.

Persons over 45 years of age should not neglect typhoid vaccination in case they are likely to become subjected to the actual dangers of infection.

The exact percentage of persons "rendered immune to typhoid after taking the vaccine" cannot be stated, but most likely the resistance to typhoid infection will be increased more or less in practically all properly vaccinated persons. Obviously it cannot be known precisely just how long the preventive effect of typhoid vaccination will last in the individual case, but experience indicates that the preventive effect persists for at least three years and probably longer.

OCCUPATIONAL NEUROSIS

To the Editor:—*A woman stenographer, aged 35, has had trouble for* several weeks with her third and little finger on the left hand. When she typewrites at times the two fingers will not flex or come down on the type and she has to stop and concentrate or move them with the other hand. There is no trouble in other kinds of work. Examination *is negative in every way.* Sensation is present; there is no loss of sense to heat or cold, and no pain or atrophy. Otherwise she feels perfectly well. Local treatments of all kinds have been applied but do not help. Could you suggest diagnosis and treatment? Please omit name and address.

M.D., Iowa.

Answer.—Whereas the patient is unable to use her third and little finger for typewriting, she is able to use these fingers for other purposes. The fact that this paradoxical weakness is unassociated with any objective changes suggests that the condition is one of so-called occupational neurosis. These occupational palsies can be treated only by psychotherapy of some form or by change of occupation. Local treatments are without avail.

CHOLECYSTITIS WITH PANCREATITIS AND GLYCOSURIA

To the Editor:—A man, aged 50, complains of intense itching of the abdominal skin and to a lesser degree of the rest of the body. He has been treated by different physicians with no apparent results. He had a gallbladder operation with only removal of stones and drainage about a year ago. I find sugar slightly positive in the urine. He says that the urine was always negative before. A trace of bile salts also is present; there is no evidence of jaundice. The patient has been put on a diabetic diet. *Please omit name.*

M.D., Nova Scotia.

Answer.—Probably this patient belongs to that group seen not infrequently in whom cholecystitis is associated with or followed by chronic pancreatitis and glycosuria. It might be of diagnostic value to determine the blood sugar content and also the icterus index of the blood. Assuming that a hyperglycemia will be present, a continuation of the diabetic diet is certainly indicated. The bowels should be kept open, preferably by a mild saline.

ACIDOSIS THERAPY

To the Editor:—A prescription presumed to be useful in the treatment of hay fever has been given extensively in this locality. It is:

℞ Nitrohydrochloric acid N. F.................... 18 cc.
Aqua, q. s...................................ad 120 cc.
Sig.: One teaspoonful after meals and at bedtime in two thirds of a glass of water followed by a full glass of water.

I have been unable to get any information which would warrant the use of this and would *appreciate hearing from you regarding it. Please* omit name.

M.D., Orchard Park, N. Y.

Answer.—This was recommended by Dr. Harry Beckman (The Journal, Nov. 22, 1930), who believes that "acidosis therapy" is successful in 70 per cent of cases of hay fever. Beckman's premise that alkalosis is the cause of allergy is, however, not generally accepted; nor has this treatment been as successful in other hands. Therefore it still remains to be determined whether this prescription has any value, and, if so, in what class of cases.

HYDROGEN PEROXIDE AS A BLEACH

To the Editor:—Would the use of hydrogen peroxide, applied almost nightly to the face, cause *any ill effects? The purpose of this procedure* is to cause some bleaching of the facial hair, thus avoiding the necessity *of shaving twice daily. Can you tell me* whether or not the peroxide would accomplish this? Please omit name.

M.D., New York.

Answer.—Hydrogen peroxide applied externally is harmless. It accomplishes a gradual bleaching of the darker hairs.

DIPHTHERIA TOXOID FOR IMMUNIZATION

To the Editor:—I gave a baby toxin-antitoxin, three doses of 1 cc. each at 7 months, and four months after the last dose his Schick test is a marked positive. Could toxoid be used to immunize him now or should the toxin-antitoxin be repeated? Please omit name.

M.D., West Virginia.

Answer.—It would be better to use diphtheria toxoid for further immunization of the baby.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: *Clinical.* Chicago, Dec. 29. *Sec., Dr. Paul Titus, 1015 Highland Bldg.,* Pittsburgh.

Arkansas: *Regular.* Little Rock, Nov. 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Eureka Springs, Nov. 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

California: *Reciprocity.* Los Angeles and San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Connecticut: *Regular.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: *Regular and Homeopathic.* Wilmington, Dec. 8-10. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

Florida: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

Kansas: Kansas City, Dec. 8. Sec., Dr. C. H. Ewing, Larned.

Kentucky: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

Maine: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Maryland: Baltimore, Dec. 8-11. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

Massachusetts: Boston, Nov. 12-14. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

Nebraska: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

North Carolina: *Endorsement.* Raleigh, Dec. 7. Sec., Dr. John W. MacConnell, Davidson.

Ohio: Columbus, Dec. 8-10. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

South Carolina: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

Texas: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

Utah: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

Virginia: Richmond, Dec. 8. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

West Virginia: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

Wisconsin: *Basic Science.* Milwaukee, Dec. 19. Sec., *Prof. Robert* N. Bauer, 3414 West Wisconsin Ave., Milwaukee.

New York January Examination

Mr. H. J. Hamilton, chief, Professional Examinations, reports the written examination held at Albany, Buffalo, New York and Syracuse, Jan. 26-29, 1931. The examination covered 9 subjects and included 10 questions. An average of 75 per cent was required to pass. One hundred and ninety candidates were examined, 134 of whom passed and 56 failed. The following colleges were represented:

PASSED College	Year Grad.	Number Passed
Yale University School of Medicine	(1928, 2), (1929)	3
Georgetown University School of Med.	(1927, 2), (1930, 3)	5
George Washington University Medical School	(1930, 6)	6
Howard University School of Medicine	(1929)	1
Emory University School of Medicine	(1928)	1
University of Georgia Medical Department	*(1926)*, (1928)	2
Loyola University School of Medicine	(1930)	1
Rush Medical College	(1928), (1930)	2
University of Louisville School of Med.	(1929, 2), (1930)	3
Johns Hopkins University School of Medicine	*(1928)*	*1*
University of Maryland School of Medicine and Surgery *and College of Physicians and Surgeons*	*(1930, 2)*	2
Boston University School of Medicine	(1928), (1930)	2
Harvard University Medical School	*(1928, 2)*	2
Tufts College Medical School	(1929), (1930)	2
University of Michigan Med. Sch.	*(1927)*, *(1928)*, *(1930, 2)*	4
St. Louis University School of Medicine	(1926), (1930, 5)	6
University of Nebraska College of Medicine	(1929)	1
Columbia Univ. College of Phys. and Surgs.	(1929), *(1930, 7)*	8
Cornell University Medi [illegible]	(1930, 2)	2
Long Island College of [illegible]	(1930, 9)	9
New York Homeopathic [illegible]	(1930)	1
Syracuse University College of Medicine	(1930, 2)	2
University and Bellevue Hospital Medical College	(1930, 8)	8
University of Buffalo School of Medicine	(1930, 2)	2
University of Rochester School of Medicine	(1929)	1
University of Oklahoma School of [illegible]	(1926)	1
Hahnemann Med. College and Hosp.	[illegible]	2
[illegible]	[illegible]	2
[illegible]	1930, 3)	3
[illegible]	(1930)	2
[illegible] of Medicine	(1928)	1
[illegible] ment of Medicine	(1929)	1
[illegible] ical School	(1929), (1930)	2
[illegible] of Medicine	(1929)	1
Dalhousie University Faculty of [illegible]	(1929)	1
Queen's University Faculty of [illegible]	[illegible], (1930)	3
University of Toronto Faculty [illegible]	[illegible] 25, 2), (1927), (1928, 2), (1929, 3), (1930, 2)	11

College — PASSED	Year Grad.	Number Passed
McGill University Faculty of Medicine	(1927), (1928), (1929), (1930, 4)	7
University of Vienna Faculty	*	1
German University of Prague	*	1
University of Berlin Faculty o:		3
Medical Faculty of the Univ. of Frankfurt-am-Main	(1923)*	1
University of Budapest Faculty of Medicine	(1921)*	1
National University of Ireland Faculty of Medicine	(1923)	1
University of Dublin School of Physic, Trinity College	(1925)	1
Royal University of Bologna Faculty of Med. and Surg.	(1927)	1
Royal Univ. of Naples Fac. of Med. and Surg.	(1927), (1928)	2
Royal University of Rome Faculty of Med. and Surg.	(1930)	1
University of Kharkov, Faculty of Med., U. S. S. R.	(1922)*	1
University of Edinburgh Faculty of Medicine	(1930)	1
Osteopaths		5

College — FAILED	Year Grad.	Number Failed
Yale University School of Medicine	(1928)	1
Georgetown Univ. School of Med.	(1928), (1929), (1930, 6)	8
Howard University School of Medicine	(1930, 2)	2
Loyola University School of Medicine	(1930, 2)	2
Rush Medical College	(1930)	1
University of Louisville School of Medicine	(1927)	1
Boston University School of Medicine	(1929), (1930)	2
Tufts College Medical School	(1927), (1928)	2
Detroit College of Medicine and Surgery	(1928)	1
St. Louis University School of Medicine	(1930)	1
University of Nebraska College of Medicine	(1929)	1
Cornell University Medical College	(1930)	1
New York Homeopathic Med. Coll. and Flower Hosp.	(1916)	1
Syracuse University College of Medicine	(1930)	1
University of Oklahoma School of Medicine	(1929)	1
Medical College of the State of South Carolina	(1926)	1
University of Vermont College of Medicine	(1926)	1
Medical College of Virginia	(1929)	1
Queen's University Faculty of Medicine	(1929), (1930)	2
McGill University Faculty of Medicine	(1924)	1
University of Graz Faculty of Medicine, Austria	(1905)*	1
University of Vienna Faculty of Medicine	(1926)*	1
University of Berlin Faculty of Medicine	(1925)*	1
University of Jena Faculty of Medicine, Germany	(1925)*	1
University of Budapest Faculty of Medicine	(1917)	1
Royal Hungarian Elizabeth Univ. Faculty of Medicine	(1925)	1
Royal Univ. of Bologna Faculty of Med. and Surg.	(1928)*	1
Royal University of Naples Faculty of Medicine and Surgery.	(1923, 2), (1925),* (1927)	4
Royal Univ. of Rome Fac. of Med. and Surg.	(1927), (1930)*	2
Royal Univ. of Palermo Fac. of Med. and Surg.	(1920), (1928)*	2
University of Portugal Faculty of Medicine	(1925)	1
University of Cluj Faculty of Medicine, Roumania	(1926)	1
University of Saratov Faculty of Med., U. S. S. R.	(1922)*	1
Moscow State University Faculty of Med., U. S. S. R.	(1920)*	1
School of Medicine of the Royal Colleges, Edinburgh	(1929)	1
University of Istanbul Faculty of Medicine, Turkey	(1916)*	1
Osteopaths		3

Mr. Hamilton also reports 67 candidates licensed by the endorsement of credentials from Jan. 1 to May 1, 1931. The following colleges were represented:

College — ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
College of Medical Evangelists.		N. B. M. Ex.
University of Colorado School of		N. B. M. Ex.
Georgetown University School c		Porto Rico
Howard University School of M [illegible] N. Car.,	(1929)	Virginia
Emory University School of		Georgia
Chicago College of Medicine :		Illinois
Northwestern University Wc		Mass.
Indiana University School of Medicine	(1928), (1929)	Indiana
State University of Iowa College of Medicine	(1928)	Iowa
Tulane University of Louisiana Medical Department	(1910)	Louisiana
Tulane University of Louisiana School of *Medicine*	(1926)	N. B. M. Ex.
College of Physicians and Surgeons of Baltimore	(1907)	Porto Rico
Johns Hopkins University School of Medicine	(1916)	Ohio
	(1924) N. B. M. Ex., (1923), (1928), (1929)	Maryland
Boston University School of Med. (1919) Porto Rico,	(1929)	N. B. M. Ex.
Harvard University Medical School	(1928)	N. B. M. Ex.
St. Louis Univ. School of Med. (1924) Minnesota,	(1927)	Ohio
University of Minnesota Med. School. (1927) Minn.,	(1930)	N. B. M. Ex.
Washington University School of Medicine	(1930)	N. Carolina
Columbia University College of Phys. and Surgs.	(1927, 2)	
	(1928), (1929, 2)	N. B. M. Ex.
University of Cincinnati College of Medicine	(1927), (1928)	Ohio
University of Oregon Medical School	*(1929)*	N. B. M. Ex.
Hahnemann Med. College and Hosp. of Philadelphia	(1911)	Porto Rico
Jefferson Medical College of Philadelphia	(1918)	Virginia
	(1925) Ohio, (1927)	New Jersey
University of Pennsylvania School of Medicine	(1929)	New Jersey
University of Pittsburgh School of Medicine	(1924)	Ohio
Woman's Medical College of Pennsylvania	*(1909)*	Penna.
University of Tennessee College of Med.	(1924), (1930, 3)	Tennessee
Baylor University College of Medicine	(1927)	Texas
Southern Methodist University Medical Dept., Texas	(1913)	Texas
University of Vermont College of Medicine	(1902)	Mass.
Medical College of Virginia	(1926)	Maryland
University of Virginia Dept. of Med.	(1927), (1928), (1929)	N. B. M. Ex.
McGill Univ. Faculty of Med. (1924) Maryland,	(1929, 2)	N. B. M. Ex.
University of Vienna Faculty of Medicine	(1921)*	Diploma
University of Breslau Faculty of Medicine	(1925),* (1926)*	Germany
Univ. of Budapest Faculty of Med. (1916) W. Va.,	(1919)	Ohio
Royal Univ. of Palermo Faculty of Med. and Surg.	(1905)	New Jersey
Medical Institute of Leningrad, U. S. S. R.	(1912)*	Diploma
Odessa State Medical Institute, U. S. S. R.	(1917)*	Diploma
University of Edinburgh Faculty of Medicine	(1928)	N. B. M. Ex.
Osteopath		New Jersey

* Verification of graduation in process.

North Dakota July Report

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, July 7-10, 1931. The examination covered 13 subjects and included 100 questions. An average of 75 per cent was required to pass. Thirteen candidates were examined, 12 of whom passed and one failed. Four physicians were licensed by reciprocity with other states. The following colleges were represented:

College — PASSED	Year Grad.	Per Cent
College of Medical Evangelists	(1931)	86.5
Northwestern University Medical School	(1931)	83.6
University of Illinois College of Medicine	(1931)	80
University of Louisville School of Medicine	(1930)	83.5
University of Michigan Medical School	(1930)	86.5
University of Minnesota Medical School. (1930) 78.5,	(1931)	75.5
Washington University School of Medicine	(1927)	83.5
University of Nebraska College of Medicine. (1929) 75,	(1930)	79
Syracuse University College of Medicine	(1929)	79.4
University of Manitoba Faculty of Medicine	(1921)	80

College — FAILED	*Year Grad.*	*Per Cent*
Marquette University School of Medicine	(1925)	65

College — LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1925)	Illinois
Northwestern University Medical School	(1929)	Illinois
Indiana University School of Medicine	(1927)	Indiana
University of Nebraska College of Medicine	(1919)	Nebraska

Medical Economics

ANNUAL CONFERENCE OF THE ASSOCIATION PROFESSIONNELLE INTERNATIONALE DES MÉDECINS

(By a Special Correspondent)

The Association professionnelle internationale des médecins, more familiarly known as the A. P. I. M., held its sixth annual conference in Budapest from September 9 to 13, on the invitation of the National Association of Hungarian Physicians. The A. P. I. M. is an association of national medical organizations; that is to say, it recognizes in each country only that group which represents the great bulk of the profession. It deals only with professional as distinguished from scientific matters. It does the main part of its work by questionnaires issued throughout the year, the results of which are discussed at the annual meeting.

At present the national groups represented consist of Germany, Austria, Belgium, Denmark, Norway, Sweden, France, Great Britain, Holland, Hungary, Lithuania, Luxemburg, Poland, Yugoslavia, Switzerland, Spain, Canada, Bulgaria, Danzig, Esthonia, Palestine, Czechoslovakia, Rumania, United States, Uruguay, Cuba and Portugal. Of these the first sixteen were directly represented by one representative each, generally the president or the secretary of the group. Bulgaria and Canada were represented by deputy. Spain had a representative for the first time. These conferences are interesting, for it is astonishing how, in spite of the difference of conditions as between nation and nation, the medical problems are much the same everywhere. The official language is French, but most of the delegates speak German quite as fluently, or more so, and that language is often used. But the rule is that if a member uses any other language than French his remarks must be immediately translated into that language. The president was Dr. Narbeshuber of the Austrian group, a man who stands preeminent for his devotion to the interests of the Austrian profession. In his address he dealt with the work of the A. P. I. M. during a strenuous year but devoted most of his time to the question of health insurance, which invariably occupies most of the time of the conferences. The report of the general secretary (Dr. Fernand Decourt of France, the founder and the life and soul of the movement) dealt with the difficulty experienced in getting replies out of the national correspondents, a difficulty which was better understood when the president remarked that many of the groups, of which his was one, could not afford the necessary staff and had to depend on the voluntary labors of overworked men. He himself acts as president, secretary and correspondent for the Austrian group. It was resolved to keep the number of questionnaires down as far as possible and to give longer time for their return.

It was resolved to have a report next year on the possibility of instituting an organized international exchange of the children of physicians for educational and cultural purposes.

It was decided that during the coming session questionnaires should be circulated dealing with (1) the medical inspection and treatment of school children and (2) the opinion of the profession and the practice in each country as regards the patenting of medical inventions and discoveries. The latter question is arousing a great deal of discussion in several countries, including Great Britain, where up to now it has been assumed that it is unethical and against public interest that the benefit of such discoveries should be in any way restricted by considerations of personal gain. The practice and even the tradition seems to be quite different on the continent.

Reports on health insurance affairs were given from various countries. France has just inaugurated its system, and the results will be watched with great interest, because after a big fight the French doctors have succeeded in securing that the insured person shall pay the doctor's bill direct, afterward recovering a portion of it from the local insurance authority. The bill is made out according to a tariff established by the doctors themselves. The French doctors regard this method as being the best protection against the interference in professional affairs by bodies which in nearly every other country have succeeded in making the position of the doctors exceedingly uncomfortable, and sometimes almost unbearable. The reports from Germany, Austria and Hungary were very depressing, the efforts of the caisses (the lay insurance authorities) to dominate the profession and to diminish its income being greatly helped by the oversupply of doctors in these countries. Dr. Schneider of Germany said that the financial stability of their system and of the medical profession had been seriously undermined by exaggerated benefits being given and by the constant extension of the scope of the system, so that now such a large proportion of the population was insured that there was little scope for private practice. From all the continental countries there was reported a tendency to spend unnecessary money on elaborate buildings, the money being found to a great extent by reducing the doctors' pay. The feeling that the whole financial structure of health insurance was threatened was evidently shared by all the central European representatives. But it must be clearly understood that the unanimous opinion of those present was that health insurance is a good thing if it can be kept within proper limits and secure from manipulation by political parties.

A warm discussion developed on a proposal that the right of the doctor who wanted to take part in insurance work should be limited to those who are members of the national group, Germany and Belgium in particular being afraid of the "blackleg." But the majority believed that the only way for the profession to retain the sympathy of the insured person is to insist that the latter shall have full choice among all the doctors who wish to take part in the service, and that it is the business of the medical groups to induce every doctor to come inside their organizations.

Hungary was anxious that doctors should have full representation in the administration of the cash as well as of the medical benefits, and gave reason for their wish, based on their own distressing experience, but it was ultimately decided that the profession could rightly claim representation only on bodies dealing with medical treatment; otherwise it would be difficult to resist the claim that the caisses should be represented on bodies dealing solely with medical affairs—a claim that has been successfully resisted in some countries, including Great Britain.

There were many animated discussions on matters of international importance to the profession, which will be covered in the November issue of the *Revue internationale*. Those interested in the question of health insurance should read this publication, which is issued quarterly. The August number contains by far the most complete statement that exists as to the medical side of health insurance in nearly every country. The subscription is 20 French francs a year and it is published (in French) by the A. P. I. M. at 95, Rue du Cherche-Midi, Paris.

The social side of the meeting was admirably arranged by the Hungarian colleagues, with the help of the government. Dr. Csillery, an ex-minister, and president of the Hungarian group, together with Dr. Temesvary, the secretary, were indefatigable in their kindness. Perhaps one example of the financial state of affairs in central Europe will suffice. The chief secretary of a government department dealing with health matters—a man who in England would be getting £2,000 a year, and certainly more in the United States, was in receipt of something under £500 a year, on which a further cut is shortly to be made.

Book Notices

Diagnosis in Joint Disease: A Clinical and Pathological Study of Arthritis. By Nathaniel Allison, M.D., F.A.C.S., Professor of Surgery, in Charge of Division of Orthopedic Surgery, University of Chicago, and Ralph K. Ghormley, M.D., Associate in Orthopedic Surgery, Mayo Clinic. *From the Orthopedic Service of the Massachusetts General Hospital and the Harvard Medical School (1924-1930).* Assisted by the DeLemar Mobile Research Fund. Cloth. Price, $9. Pp. 196, with 71 illustrations. New York: William Wood & Company, 1931.

The qualifications of the authors of this volume are excellent. One is professor of orthopedic surgery at a university; the other is a leading orthopedic surgeon of one of the largest clinics. The book has all the qualifications of an atlas with the addition of an excellent manuscript and legends for the illustrations. The subject matter was well chosen. The sequence of discussion of subjects is excellent. The illustrations, including photographs, diagrams, roentgenograms and photomicrographs, have been better chosen than, in many instances, executed. The photomicrographs of tubercle formation in synovial membrane and in bone are of great value. The references include those of Nichols and Richardson, of Fisher and of Ely. This volume represents several years of intensive study and collection of material. The authors give the compilation of data and their experience over a period of six years of study of 289 cases of arthritis. They collected the clinical, roentgenologic, bacteriologic, chemical and pathologic data in these cases. They approach the subject from the standpoint of three main issues: What is the etiologic factor? What tissue of the joint is primarily affected? What is the character of the tissue change? They give Nichols and Richardson unlimited credit for their work on the subject of arthritis. They give Ely much credit for his pathologic studies, and also compliment Fisher, Pemberton and Swift.

The authors emphasize the fact that one of the important necessities in the study of joint diseases is greater accuracy in methods of diagnosis. They urge a common basis of classification of disease processes. The subjects covered are discussed in the following order: the physiology and chemistry of joint structure; the classification of arthritis; the classification of joint diseases; tuberculosis; traumatic arthritis; arthritis associated with loose body formation; pyogenic infections of joints; arthritis of uncertain origin; proliferative arthritis, and degenerative arthritis.

Considerable space is given to the subject of osteochrondritis dissecans. The most recent work on the physiology and chemistry of joint structures is discussed, including the synovial fluid, cartilage and bone. They offer a classification of arthritis, dividing the subject into two main sections: those in which the origin is known and those in which the origin is unknown. Those of known orgin are divided into four classes: traumatic arthritis, bacterial agent, arthropathies and constitutional disturbances. Those of unknown origin are given as proliferative arthritis, degenerative arthritis and unclassified. They believe that any classification should have for its basis the etiologic factors responsible and the primary tissue changes that result. They emphasize that disease processes are not of the bone but in the bone. In all forms of arthritis, with only one exception—the degenerative form—the disease process primarily affects first the synovial membrane, which proliferates, and secondly the marrow and connective tissue, which proliferates. All tissue changes, such as atrophy and hypertrophy, loose body formation, eburnation and cartilage destruction, are secondary changes which follow the process of synovial and marrow proliferation. The diagnosis of proliferative arthritis is positively made by tissue study and the finding of focal collections of lymphocytes in the marrow and the synovial membrane.

One would be remiss in one's duty if one did not mention the chief adverse criticism. There are several typographic errors; some roentgenograms are upside down. The gross colored plates are disappointing, to say the least. It is unfortunate that many of the roentgenograms do not illustrate what the legends state. Such conditions as tumors of bone, tumors of the synovial membrane, synovial outpouchings and syphilitic arthritis are not discussed. The reader will find that a magnifying glass is helpful in the examination of the photomicrographs. Ghormley found that, in forty-one cases in which the diagnosis of tuberculosis of the joints was made, only twenty-seven, or 66 per cent, were proved to be tuberculous. In fifty-two cases in which the diagnosis of tuberculosis was set down as the probable cause of the joint disease, only twenty-seven, or 52 per cent, were proved to be tuberculous. In forty-two cases in which tuberculosis was not considered as a possible cause, twenty-three, or 55 per cent, were proved to be tuberculous. Twenty-nine per cent of all cases of arthritis remain uncertain of diagnosis after the completion of all clinical tests.

The publishers have produced an attractive book. It can be recommended highly. It should be of value to orthopedic surgeons, pathologists and internists.

Handbuch der mikroskopischen Anatomie des Menschen. Herausgegeben von Wilhelm v. Möllendorff. Band VII: Harn- und Geschlechtsapparat. Teil 2: Männliche Genitalorgane. Bearbeitet von Dr. H. Stieve, o. ö. Professor der Anatomie und Vorstand der anatomischen Anstalt der Universität Halle-Wittenberg. Paper. Price, 128 marks. Pp. 399, with 245 illustrations. Berlin: Julius Springer, 1930.

This is one of the best volumes of the series. The presentation is morphologic, but features of physiologic importance are duly stressed and, read from the background of a dynamic account of the subject such as Maximow gave in his textbook, it is the best account that has been written. The descriptions are confined to human material and based on the author's own series, which includes many stages, well preserved, from the embryonic period to senility. The illustrations are perfectly objective but clear and comprehensive. The literature, especially the German, is fully considered but opinions which differ from the author's are given scanty shrift. The account of the embryonic development of the testis with which the volume begins adds to knowledge in a debated field. The idea of a "keimbahn" and the genetic significence of the chromosomes are treated with great skepticism. The interstitial cells of the testis are assigned a part in the nutritional regulation of the organ and denied endocrine significance. They are regarded as closely related to histiocytes; from the evidence presented, it would seem that two distinct cell types have been confused because of an inadequate cytologic technic. In the next section, on the accessory organs, the need of chemical and postvital cytologic studies is also manifest. The vascular system of the penis is fully presented but there are no other descriptions of the vascular patterns such as often help materially in the understanding of the function as well as the structure of an organ. The structure of the male urethra is included in this volume.

The Displacement Method of Sinus Diagnosis and Treatment: A Practical Guide to the Use of Radiopaques in the Nasal Sinuses. By Arthur W. Proetz, A.B., M.D., Assistant Professor of Clinical Otolaryngology in the Washington University School of Medicine. Cloth. Price, $6. Pp. 242, with 145 illustrations. St. Louis: Annals Publishing Company, 1931.

This monograph is the result of much careful, ingenious and original research having for its object the diagnosis and treatment of diseases of the nasal accessory sinuses. There is first a consideration of the principles of displacement, description of the apparatus employed, physics and physiology of the sinuses, as well as discussion of their anatomic peculiarities, their pathology, and the theory of their treatment. The author takes up the various types of radiopaque fluids and the method of their introduction, together with the various data of the proper roentgenology to be employed. Several chapters are devoted to studies of topography, cell identification, film interpretation, filling and emptying time. An interesting and also important chapter is that which deals with the observation of allergic changes in the sinuses by means of radiopaques. A series of case records and a complete bibliography are given at the end of the work. Great credit is due Dr. Proetz for his clever and painstaking studies, which are giving so much aid to rhinologists in the diagnosis and treatment of sinus disease. In this clearly written and well illustrated work, he shows his methods so that they may be applied by all who are interested in this subject. From the point of view of originality and its great scientific as well as practical value, this monograph is one of the finest contributions to rhinology that has appeared in a long time. The perusal of the work will prove of immense value to every rhinologist desirous of giving his patients the benefits of the valuable procedure of displacement so admirably described.

Die gesamte Wiederherstellungschirurgie zugleich 2. Auflage der Wiederherstellungschirurgie. Bande I und II. Von Erich Lexer, ord. Professor der Chirurgie an der Universität München. Paper. Price, 108 marks. Pp. 896, with 1910 illustrations. Leipzig: Johann Ambrosius Barth, 1931.

This is a large and beautifully prepared monograph on plastic and reconstructive surgery by a master in the field and is, in reality, the second edition of Lexer's work on reconstructive surgery, written immediately after the World War. That volume, published in 1920, was written with the idea of assisting the reconstruction of the war wounded, was a single small volume of 361 pages, and discussed and presented actual cases illustrating the repair of tissue defects, the repair of functional defects due to adhesions, and the repair of defects and disfigurements of the face due to adhesions. In this edition the author has greatly broadened the scope of the work, which now covers the entire field of plastic and reconstructive surgery. It is divided into three main sections: holes in or absence of tissue; malformations of shape and position; disturbances of motion. These may be congenital, or acquired through disease, injury or operation. In each section the congenital lesions are considered first. The material is divided into two volumes. The author is well known as a plastic surgeon and has been collecting material for such a book since 1905, during his rich experience as chief of the surgical clinics successively at Königsberg, Jena, Freiburg and recently at Munich. He has conceived and contributed numerous new plastic operative procedures, which, together with his rich researches in tissue and organ transplantation, both in the laboratory and in his clinic, form the basis of this monograph. After living and working untiringly in this field all these years, with his rich material and his genius in this type of work, he has produced a work that is a classic. The author has been recognized as one of the leading workers in the free transplantation of tissues and organs, both experimentally and clinically. He has stimulated and directed the work of younger men in his clinic along these lines. He collected his work and theirs, both experimental and clinical, together with that of others in the field, in two volumes entitled "Die freien Transplantationen," the first volume of which appeared in 1919 and the second in 1924. This set still remains the authority on the subject. In "Die gesamte Wiederherstellungschirurgie" he has incorporated the important clinical facts and material collected in the earlier set, omitting, however, most of the historical data and purely experimental studies. The two sets, therefore, complement each other and together constitute the most valuable literary contribution extant on the subject by any one author. The first volume of "Die freien Transplantationen" appeared in 1919 and the second in 1924. These contained Lexer's tissue transplantation cases up to that time. The new contribution includes his cases up to 1930, and there is much that is new. As an example may be mentioned the use of mucous membrane from the lower lip in the reconstruction of the urethra in cases of stricture. In "Die freien Transplantationen" he reported successful cases in which he made use of the patient's normal appendix for this purpose, a method original with him, but he adduced evidence showing that the appendix, thus used, eventually disappeared and he recorded some failures of the method in the hands of other surgeons and suggested that the use of mucous membrane from the lower lip as theoretically the most likely successful method. He later tried out this suggestion, using the same technic that Nové-Josserand had employed, of suturing the transplant around a catheter as a cylindric cuff, except that Lexer used mucous membrane from the lower lip instead of epidermis. He reports successful use of this new method in a few cases and gives all the details of one of them. The work covers a surprising amount of the surgical field, including as it does plastic surgery and many of the most difficult problems of the surgery of childhood and of nerves, muscles, tendons, bones and joints. Much of Lexer's best work has been in these fields, and his many valuable contributions are here easily available and systematically arranged, together with critical evaluation of the best contributions from other surgeons which he has found clinically useful. His reconstruction cases, including those since 1924, are here recorded and profusely illustrated. All surgeons of experience will welcome this valuable addition to the literature.

Cutaneous X-Ray and Radium Therapy. By Henry H. Hazen, A.M., M.D., Professor of Dermatology, Medical Department of Georgetown University. Cloth. Price, $3. Pp. 166, with 28 illustrations. St. Louis: C. V. Mosby Company, 1931.

In the preface of this book, which is dedicated to George Miller MacKee, the author states that his aim has been to write a short essentially practical book that will aid in the selection of cases for irradiation, give safe advice as to the technic, and warn against the many pitfalls. It is apparent from a perusal of the contents that the author's intention was not to write a monograph but rather to give a digest of his many years of personal experience, giving due credit to the pioneer work of other continental and American workers in this field. There are a number of perhaps minor criteria that detract from the usefulness of this work. The illustrations are for the most part poor; and although the author states that the usual before and after photographs have been omitted because of lack of space, their inclusion would have greatly added to the value of the book. There also are not enough illustrations of the technical application of the x-ray apparatus which are so essential for the beginner. The consideration of long wave or grenz ray therapy is so inadequate as to suggest lack of first-hand familiarity with this latest innovation in roentgen therapy. The paragraphs on radium therapy are entirely too brief and sketchy to be of any value to the practical worker. The treatment of the individual skin diseases is fairly well covered, although a few of the author's personal opinions would seem to require qualification. The statement that "a strawberry nevus yields to light doses of x-rays" is contrary to the experience of many men. There are appropriate warnings of the dangers of too frequently repeated fractional doses in the treatment of acne and of the extreme hazards of treatment of hypertrichosis by beauty shop operators.

Histofysiologiske undersøgelser over nyrefunktionen med saerlig henblik paa theophyllindiuresen. Af Harald Okkels. Paper. Pp. 192, with 10 illustrations. Copenhagen: Levin & Munksgaard, 1930.

This is a doctorate thesis accepted by the medical faculty of the University of Copenhagen. The thesis gives a critical review of the histophysiologic methods for the study of renal function but deals principally with the morphology of the kidney of the frog under various forms of function as observed by microscopic examination of the living kidney in situ and by cytologic study of fixed material. There is also a chapter on the results of certain supplementary experiments on rabbits. The results are summarized in Danish and also in French. The thesis will interest especially investigators actively engaged in the study of renal function.

Fractures of the Jaws. By Robert H. Ivy, M.D., D.D.S., F.A.C.S., Professor of Maxillo-Facial Surgery, Graduate School of Medicine, and Lawrence Curtis, A.B., M.D., D.D.S., Assistant Professor of Maxillo-Facial Surgery, Graduate School of Medicine, University of Pennsylvania. Cloth. Price, $4.50. Pp. 180, with 177 illustrations. Philadelphia: Lea & Febiger, 1931.

This book contains the result of many years' experience in the treatment of fractures of the jaw and their complications. The authors emphasize the haphazard way in which these fractures are frequently handled, resulting in permanent disability of the jaw unless correction is obtained by measures which require months of treatment. They claim for their method the important advantage that it can be applied by the oral surgeon or dentist immediately, regardless of the case, without resort to highly technical dental laboratory procedure, so that practically no time is lost in the reduction and fixation of the fragments. The book is divided into six parts: anatomic considerations; general consideration of fractures; fracture of the mandible; complications of fracture of the mandible; fracture of the maxilla, and fracture of the malar bone and zygomatic arch. The chapter on roentgenographic technic was written by Ennis. The chapter on dietary management in fractures of the jaw was written by Scogin.

Further Investigations of the Variola-Vaccinia Flocculation Reaction. By James Craigie and W. J. Tulloch. Medical Research Council, Special Report Series, No. 156. Paper. Price, 3s. Pp. 129, with 17 illustrations. London: His Majesty's Stationery Office, 1931.

This report deals with the results of the reactions obtained on mixing antivaccinia serum from the rabbit with extracts of material from the lesions of vaccinia and smallpox. It appears to be established definitely that the resulting flocculation or precipitation is specific and that variola and vaccinia are identical immunologically. The technic of preparing the extracts for the test and the method of making the test are described in detail. The possibilities of new methods of immunization by means of mixtures of antiserum and virus are discussed: The report will be of especial interest to all investigators of fundamental problems of variola and vaccinia.

The Thirty-Fifth Report on Food Products and the Twenty-Third Report on Drug Products, 1930. Bulletin 329 of the Connecticut Experiment Station. Paper. Pp. 610-669. New Haven: Connecticut Agricultural Experiment Station, 1931.

This is a summarized report for 1930 of the examination of a wide variety of foods and drugs at the Connecticut Agricultural Experiment Station in connection with the food and drug control work of that state. Chemical analyses of the products examined are listed and pertinent information on their composition is furnished. Attention is called to the misbrandings and adulterations disclosed. This annual report is a most valuable source of authentic information on marketed foods and drugs; it is especially useful to food, drug and health officials.

Farmacología de la digital. Por. A. Gámir. Paper. Price, 7 pesetas. Pp 308. Madrid: Editorial Paracelso, 1931.

This monograph on digitalis aims to present in one volume as completely as possible what is actually known about the action and therapeutic uses of digitalis. The book includes an interesting chapter on the cultivation of digitalis, which the author desires Spanish pharmacists to undertake. It takes up in turn the botany and pharmacognosy of the drug, its evaluation, and the isolation and chemistry of its active principles, and discusses the pharmaceutic preparation of the various pharmacopeias, the pharmacodynamics, the toxicology, the therapeutic uses and the methods of administration in a thoroughgoing conservative and yet modern manner.

Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus. By Louis A. Buie, B.A., M.D., F.A.C.S., Section on Proctology, the Mayo Clinic, Rochester, Minnesota. Mayo Clinic Monographs. Cloth. Price, $3.50. Pp. 178, with 72 illustrations. Philadelphia: W. B. Saunders Company, 1931.

This book is one of a series of monographs published under the direction of the Mayo Clinic. The author is well known to the medical profession for his work in proctology and presents in a small volume mainly his personal views on the subject mentioned in the title. He describes in detail the technic of rectal and sigmoidal examination, the type of table, methods of preparation of the patient and the indications for examination. He emphasizes the points that proctoscopic and stool examination must be made even though the bowels are constipated because he has found pathologic stools even under such conditions. He believes that infection is the cause of hemorrhoids and states that 48 per cent of all patients with complaints referable to the bowel have hemorrhoids. He quotes statistics and facts pertaining to hemorrhoids from a study made by his associate Dr. George E. Malmgren on 1,000 patients operated on and on the microscopic study of 100 typical specimens. The statement that 80 per cent of 854 patients with uncomplicated hemorrhoids had pain should read 70 per cent. This is undoubtedly a typographic error. There is no record of malignancy in any specimen removed. Dr. Buie favors sacral anesthesia and regards general anesthesia as the least desirable. He describes the manner of preparation, technic of operation and the after-care in great detail. He attributes the fear of operation by the patient to the poor work of surgeons and the neglect of after-care. The subject of pruritus ani is covered quite completely. The author refers to idiosyncrasies in diet as a possible cause. Would it not be better to speak of these idiosyncrasies as allergic manifestations, as they have been shown to be by many physicians? The manner of treatment by subcutaneous alcohol injections has yielded 84 per cent complete relief and all but the remaining 3 per cent more or less partial relief. The book is well illustrated and well written.

The Dental Board of the United Kingdom. Four Lectures on "The Ætiology of Irregularity and Malocclusion of the Teeth." By Professor J. C. Brash, M.C., M.A., M.D., University of Birmingham. With an appendix "Concerning Orthodontic Problems and Their Solution," by Miss M. L. Tildesley. Cloth. Price, 5/–. Pp. 274, with 195 illustrations. London: Dental Board of the United Kingdom [n. d.].

This is not a textbook of the conventional type, nor is it a textbook on orthodontia. It is a book devoted to a thorough discussion of the etiology of irregularity and malocclusion of the teeth. It is divided into four lectures, prepared for and delivered at four different dental hospitals under the auspices of the Dental Board of the United Kingdom. It would be an injustice to the author if preference were given to any portions of these exceedingly well balanced lectures in this discussion. A good impression of the contents of this book may be offered by citing the four problems, as given in the appendix by Miss Tildesley:

1. By exactly what standard is "rightness" to be measured?
2. What is the cause of divergence from this standard?
3. What means, if any, are to be used to bring individual divergent jaws into conformity with the standard set up?
4. Is any tendency to divergence that may exist in the population generally due to circumstances that it would be possible to change?

All the material in this book deals with biologic facts gathered from a study of both man and animal. All the problems dealt with certainly concern the well informed orthodontist. Little space is devoted, however, to orthodontic treatment. This is the first book that stresses properly the hereditary factors related to orthodontic problems. The author has successfully undermined many of the orthodontists' widely accepted hypotheses. Only two will be referred to: that irregularities are a concomitant of civilization, and that the presence of adenoids, the absence of nasal breathing, or the constant habit of mouth breathing has anything to do with deformities of the jaws and palate. While the author has made little effort to force conclusions, he has adequately shown that orthodontia is still an empiric science. His observations may serve to explain why the orthodontists so frequently meet with disappointment after years of painstaking efforts.

Recent Advances in Medicine: Clinical, Laboratory, Therapeutic. By G. E. Beaumont, M.A., D.M., F.R.C.P., Physician, with charge of Out-patients, Middlesex Hospital, and E. C. Dodds, M.V.O., M.D., Ph.D., Courtauld Professor of Biochemistry in the University of London. Sixth edition. Cloth. Price, $3.50. Pp. 442, with 51 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This has all the merits of the previous editions and contains much new material. Many of the recent tests are given in detail and the latest work in the laboratory and in the clinical and therapeutic fields is fully discussed. It is especially good because an able clinician and a biochemist have collaborated in covering an enormous field in a concise, clear text. There is an excellent bibliography at the end of each chapter. The book should prove valuable not only to the practicing physician but to all laboratory workers.

Pratique médico-chirurgicale. Publiée sous la direction de A. Couvelaire, A. Lemierre, Ch. Lenormant, professeurs à la Faculté de médecine de Paris. Tome VII. Poignet-Sinus. Tome VIII. Sirops-Zona. Third edition. Boards. Price, 150 francs per volume. Pp. 1123 & 1162, with illustrations. Paris: Masson & Cie, 1931.

The first six volumes of this encyclopedia have already been reviewed. The last two volumes cover the subject matter from "Poignet" to "Zona." The high standard of treatment found in the first volumes has been maintained throughout the entire series. The discussions are laconic, well organized and adequately illustrated. This work can be recommended to serve the purpose intended by its authors, as a valuable reference work.

Medicolegal

Jurisdiction of Court of Equity Over Licensure

(Drummond v. Rowe (Va.), 156 S. E. 442)

The appellees, duly licensed veterinary surgeons, filed a bill in equity against the state board of veterinary examiners and Drummond, to revoke the certificate authorizing Drummond to practice veterinary medicine. The trial court declared the certificate void, and Drummond appealed to the Supreme Court of Appeals of Virginia.

The appellees contended that the certificate had been issued by the board illegally, in that the board had not required Drummond to pass an examination. It was admitted that the case was novel and that there was no direct authority to support the contention of the appellees, who based their claim to the aid of a court of equity on the maxim that equity will not suffer a wrong to be without a remedy. In their contention, said the appellate court, the appellees overlooked the fact that "wrong," in this connection, means an invasion of property or civil rights of the party who seeks the aid of a court of equity. If it be conceded that the granting of the certificate was illegal, what injury did the appellees suffer thereby? They alleged that they would suffer a financial loss if Drummond were permitted to practice under his certificate, that they were duly registered veterinarians and as such were interested in maintaining the high standard of their profession and that they were citizens of Virginia who were interested in upholding the law.

The regulation of the practice of veterinary medicine, said the court, is purely a statutory matter. The legislature may at any time repeal all the statutes on this subject and leave that profession without any regulation in the commonwealth. The appellees had no vested right which would be affected by such repeal. The prospective financial loss complained of by the appellees is the diminution of fees if Drummond continues to practice. Their complaint the court thought untenable, for, as was said in Merz v. Murchison, 30 Ohio Cir. Ct. R. 646.

> Prescribing who may practice medicine, is designed to protect the public, and notwithstanding some incidental benefits result to those having the necessary qualifications to practice, by excluding others not qualified, it is not intended to confer special privileges upon licensed practitioners, for the protection of which as a property right they may invoke equitable aid to restrain unlawful competition by unlicensed practitioners.

The legislature has provided that the unauthorized practice of veterinary medicine is a misdemeanor, punishable by criminal prosecution. It has not declared the practice of veterinary medicine without a license to be a statutory nuisance, nor is it contended that the acts complained of will constitute in fact either a public or a private nuisance. The legislature has not extended the jurisdiction of courts of equity to cover situations such as that now presented, and for the court to assume jurisdiction when a case does not come within settled equitable rules would be to usurp a legislative function. A court of equity will not assume jurisdiction at the instance of a private individual who shows no special damages for the sole purpose of declaring one act of a quasi judicial board illegal. The decree of the trial court declaring Drummond's certificate void was therefore reversed and the case dismissed.

Neglect in Attempt to Extract Tooth

(Prevey v. Watzke (Minn.), 234 N. W. 470)

The plaintiff instituted this action against the defendant, a dentist, alleging malpractice in attempting to remove an impacted wisdom tooth. The trial court gave judgment for the plaintiff for $12,000. The Supreme Court of Minnesota affirmed that judgment.

The plaintiff, suffering with an impacted wisdom tooth, consulted the defendant, who advised its extraction and undertook the operation. According to the defendant's testimony, the work done by him occupied one hour, while the evidence on the part of the plaintiff placed the time at one and one-half to two hours. The impacted tooth was of a medium size with a single straight root. The defendant, in his attempt to remove the tooth, used a lancet, forceps, an elevator, and a bore driven by an electric engine. He did not remove the tooth, although he told the plaintiff and her brother that he did so. When asked for the tooth, he stated it had been broken up and thrown away. He did remove some pieces of bone. A few days later, suffering great pain and discomfort, the plaintiff consulted another dentist practicing in the same locality as the defendant. This dentist extracted the tooth easily in about five minutes, prying it out with an elevator. There were no marks on the tooth, indicating that it had not been touched by the defendant's instruments. This dentist found that the flesh had not been cut away from the tooth, nor was there any opening in it. "In the right rear inside of the roof of the mouth, he found a hole 1¼ inches deep and one-half inch in diameter." It was beyond the immediate area and vicinity of the tooth to be removed. In making this hole, bone, muscles and blood vessels had been crushed and removed, and the palatine nerve severed. None of the defendant's witnesses attempted to show that his work was performed properly or in the usual way. It might even be, said the court, in the absence of any satisfactory explanation, that the defendant's work was so manifestly wrong that intelligent laymen might so find without expert testimony. The defendant was employed to extract a tooth, observed the court, not to dig a hole in the roof of the plaintiff's mouth. The question of the defendant's negligence was for the jury. Its finding of negligence was, in the opinion of the court, overwhelmingly established by the evidence. While on the witness stand, the defendant voluntarily asserted that he attempted to remove the tooth from the inside of the mouth and that that method consituted good practice. There was no error in thereafter admitting evidence from qualified experts that that method did not constitute good practice.

Before the defendant operated on the plaintiff, she was in good health. Following the operation she became irritable, nervous and melancholy. For about six weeks she had a very disagreeable infection in her throat. She suffered a loss of hearing in her right ear. She lost all sensation in the upper right side of her mouth and in the right back part of her tongue, which condition was permanent. She could open her mouth only one half of the normal extent and had difficulty in eating and swallowing. For four weeks after the operation she continuously had severe pains back of her right ear in the region of her mastoid process. Afterward such pains came at intervals of a day apart, then a week or two weeks apart, and generally lasted about twelve hours. There was no change for the better during the six months preceding the trial. From this "partial recital" of her injuries attributable to the negligence of the defendant, said the Supreme Court of Minnesota, it cannot be said that a verdict of $12,000 was excessive.

Hospitals: Sanatoriums for Treatment of Nervous Diseases Not Nuisances Per Se; Zoning Regulations.— A zoning ordinance of Los Angeles provides that outside of certain designated districts it shall be unlawful for any person, firm or corporation "to erect, establish, maintain or conduct any hospital, asylum, sanitarium, home, retreat or other place for the care of insane persons, persons of unsound mind, or persons affected by or suffering from mental or nervous diseases." At the time of the passage of the ordinance, the plaintiffs operated, in a district within which the zoning ordinance forbade their operation, four sanatoriums for the treatment of nervous diseases. No insane persons were admitted in the sanatoriums. The plaintiffs sought to enjoin the enforcement of the ordinance. It is settled, said the Supreme Court of California, that where a penal statute causes irreparable damage to property rights, the injured party may attack its constitutionality by an action to enjoin its enforcement. A properly conducted sanatorium for the treatment and care of persons affected with mental or nervous diseases does not, per se, constitute a nuisance. Whether or not the plaintiffs' sanatoriums were actually conducted as nuisances was in the opinion of the court wholly immaterial. The ordinance affects all such institutions in the same manner, irrespective of whether they are conducted properly or improperly. Zoning ordinances, when reasonable in object and not arbitrary in operation, constitute a justifiable exercise of police power. The Los Angeles ordinance, so far as it prohibits the future establishment of hospitals for the treatment of nervous diseases in certain districts and permits their establishment in other specified districts, is valid. The businesses so restricted are proper subjects of such regulation. But, said the court, where an ordinance such as the one under consideration is retroactive and causes substantial injury to a prohibited business which is not a nuisance, the ordinance is to that extent an unreasonable and unjustifiable exercise of police power and is invalid.—*Jones v. City of Los Angeles (Calif.), 295 P. 14.*

Workmen's Compensation Acts: Compensability of Tuberculosis.— Under the workmen's compensation act of Maryland, any aggravation or acceleration of a disease or infection by an injury resulting in disability is compensable. If there is no evidence of an accident causing or accelerating the disease, no compensation is allowed for the disease. In the present case, the employee was engaged in mixing poultry and dairy food. The operation of mixing the feed caused the atmosphere of the room in which the employee worked to be impregnated with dust, which at times was quite thick. Becoming sick, the employee consulted a physician and was advised that he was suffering from pulmonary tuberculosis. In an action to obtain compensation from his employer, he contended that the inhalation of dust in the room in which he worked aggravated his condition. It was admitted, said the Court of Appeals of Maryland, that the employee was suffering from tuberculosis and that the disease made its appearance during the period of his employment. There was no evidence, however, of any accident within the meaning of the workmen's compensation act and compensation should not have been granted.—*Cambridge Mfg. Co. v. Johnson (Md.), 153 A. 283.*

Gifts: Presumption as to Mental Capacity of Donor.— The presumption with respect to gifts is that the donor thereof has mental capacity. Capacity relates to soundness of mind or to a mind that has full and intelligent knowledge of the act engaged in, an intelligent perception and understanding of the disposition made of property, and the persons and objects one desires to be the recipients of one's bounty. Old age, sickness, distress, or debility of body do not prove or raise a presumption of incapacity to make a gift, nor do inability to transact business, physical weakness, peculiar beliefs and opinions, or failure of memory. Incapacity as a fact must appear before the gift can be set aside.—*In re Null's Estate (Pa.), 153 A. 137.*

Privileged Communications: Reports of Physical Examinations Under the War Risk Insurance Act.— Reports of the physical examination of a veteran, made under the authority of the director of the Veterans' Bureau, are not confidential nor privileged when required to be produced in an action instituted by the veteran under the provision of the War Risk Insurance Act to collect on an insurance policy issued under that act.—*United States v. Cole (C. C. A.), 45 Fed. (2d) 339.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of American Medical Colleges, New Orleans, November 30-December 2. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

New York State Association of Public Health Laboratories, Albany, November 6. Miss M. B. Kirkbride, New Scotland Avenue, Albany, Secretary.

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Branch of American Urological Association, San Francisco, Nov. 6-7. Dr. H. W. Howard, 193 Eleventh St., Portland, Ore., Sec'y.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

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Antianemic Influence of Desiccated Whole Hog Stomach. A. B. Brower and W. M. Simpson, Dayton, Ohio.—p. 319.
Possible Clinical Indications for Follicular Hormone Therapy Based on Its Known Biologic Effect in Animal Experiments. W. S. Schoeller, M. Dohrn and W. Hohlweg, Berlin, Germany.—p. 326.
Abnormalties in White Blood Cell Response (Leukemoid, Atypical Leukemic and Leukopenic Blood Pictures). W. P. Thompson, New York—p. 334.
Pneumoperitoneum in Treatment of Tuberculous Enterocolitis. A. L. Banyai, Wauwatosa, Wis.—p. 352.
Chronic Basal Nontuberculous Pulmonary Inflammation: Its Etiologic Significance. H. H. Cherry, Waverly Hills, Ky.—p. 367.
Tuberculosis Simulating Acute Leukemia. E. R. Marzullo and J. A. de Veer, Brooklyn.—p. 372.
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Study of the Five-Hour Dextrose Tolerance Curve in Treated Diabetic Patients. Elaine P. Ralli and J. Shannon, New York.—p. 395.
Pseudoneoplastic Luetic Granulomas. H. Milch and W. Galland, New York.—p. 405.

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Effect of Age, Pregnancy and Lactation on Hemoglobin of Albino Rat. Helen S. Mitchell and Lila Miller, Battle Creek, Mich.—p. 311.
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Tachycardia, Time Factor, Survival Period and Seat of Action of Thyroxine in Perfused Hearts of Thyroxinized Rabbits. W. M. Yater, Washington, D.C.—p. 338.
Experimentally Produced Premature Systolic, Arrhythmia (Pulsus Bigeminus) in Rabbits: IV. Effective Areas in the Brain. W. F. Allen, Portland, Ore.—p. 344.
Blood Sugar, Urine Sugar and Urine Protein in Exercise. H. T. Edwards, T. K. Richards and D. B. Dill, Boston.—p. 352.
Tachycardia of Experimental Hyperthyroidism. J. T. Priestley, J. Markowitz and F. C. Mann, Rochester, Minn.—p. 357.

American Journal of Public Health, New York

21: 977-1090 (Sept.) 1931

Certification of Laboratories in California. W. H. Kellogg, Berkeley, Calif.—p. 977.
Important Factors in Directing Health of College Woman. Esther W. Stearn and Grace R. Mitchell, Columbia, Mo.—p. 984.
Public Health Organization. K. Emerson, New York.—p. 989.
Study of Diets of Federal Prisoners. P. E. Howe and A. H. MacCormick, Washington, D. C.—p. 993.
Rôle of Pay-Cost Clinic. H. R. C. Wilson, Cleveland.—p. 999.
Effect of Diphtheria Immunization on Case Incidence and Mortality C. H. Kinnaman, Topeka, Kan.—p. 1013.
Water-Borne Typhoid Fever Outbreak with Unusual Epidemiologic Features. F. W. Sears, Syracuse—p. 1019.
Interchamber Health Conservation Contest. L. A. Lincoln.—p. 1024.

American Journal of Surgery, New York

13: 431-637 (Sept.) 1931

*Simultaneous Ligation of Vein in Ligation of Large Arteries: Experimental Study. D. A. Mulvihill, Brooklyn; S. C. Harvery, New Haven, Conn., and V. Doroszka, Patchogue, N. Y.—p. 431.
Gas Bacillus Infections in Civil Surgery: Seven Cases. L. Orens, New York.—p. 453.
Perinephric Abscess: Roentgenologic and Clinical Study. L. G. Rigler and M. H. Manson, Minneapolis.—p. 459.
Condylomata Acuminata Complicating Pregnancy in Woman Having Had Four Previous Cervical Cesarean Sections. L. E. Phaneuf, Boston.—p. 468.
Tumors of Fundus of Uterus. J. W. Kennedy, Philadelphia.—p. 471.
Formation of an Artificial Vagina: Contribution to Twenty-Fifth Anniversary of Baldwin Operation. C. N. Rabinovitch, Leningrad, U. S. S. R.—p. 480.
Management of Chronic Pelvic Inflammations. C. A. Gordon, Brooklyn—p. 484.
Stomach Resection for Peptic Ulcer. R. R. Best, Omaha.—p. 487.
Intestinal Obstruction Due to Hernia in Duodenojejunal Fossa. J. A. Lazarus and A. A. Rosenthal, New York.—p. 490.
Clinical Discussion of Nonrotation of Large Gut: Two Cases. N. A. Ludington, New Haven, Conn.—p. 492.
*Spontaneous Rupture of Esophagus Following Vomiting. L. F. Smead, Toledo, Ohio.—p. 497.
Perforation of Cecum Resulting in Invagination of Small Bowel Into Large Intestine with Ileocecal Intussusception Within a Colic Intussusception H. B. Eisberg, New York.—p. 502.
L-Shaped Rubber Tube for Draining Biliary Tract. E. Horgan, Washington, D. C.—p. 504.
Gallbladder Disease. B. B. Ranson, Jr., Maplewood, N. J.—p. 507.
Cancer of Breast in Male. R. Rosh, New York.—p. 514.
Stones in Biliary Ducts. W. S. Sargent, Agana, Guam.—p. 517.
Importance of Careful Medical History in Diseases of Rectum. F. C. Smith, Philadelphia.—p. 522.
*New Method of Treating Chronic Ulcer of Leg. I. S Tunick and D. H. Kling, New York.—p. 524.
Tumors of Carotid Body. J. T. Nix and R. D'Aunoy, New Orleans—p. 529.
Local Reduction of Fractures of Tibia and Fibula: Fifty Cases. C. K. Barnes, Chicago.—p. 536.
Primary Suture of Compound Fractures: Seventy Cases. G. Y. Graves, Bowling Green, Ky.—p. 539.
Acute Lymphatic Leukemia: Case. F. S. Mainzer, Clearfield, Pa.—p. 544.
Tumors of Kidney with Especial Reference to Hypernephromas. L. W Smith and H. W. Ferris, New York.—p. 552.
Resection of Kidney: Six Cases. N. P. Rathbun, Brooklyn.—p. 565
Prostate Pack for Controlling Hemorrhage Following Prostatectomy. H. L. Foss, Danville, Pa.—p. 571.

Simultaneous Ligation of Vein and Artery.—In a review of the clinical literature, Mulvihill and his associates noted a belief in the high incidence of gangrene in human beings following ligation of the large arteries. Since 1916, many surgeons have advocated the policy of simultaneous ligation of the accompanying vein when a large artery was ligated. This procedure was thought to aid in the establishment of collateral circulation and to decrease the incidence of gangrene. The experimental literature does not furnish any definitely proved sound physiologic basis for the procedure of simultaneous vein ligation. The authors' experiments on seven dogs indicate that simultaneous ligation of the vein has no demonstrable effect in aiding or retarding the development of collateral circulation as shown by the temperature curve at the periphery of an extremity of which the main artery has been ligated.

Esophageal Rupture.—According to Smead, rupture of the esophagus may follow vomiting. Serious damage to the esophagus has followed the vomiting of pregnancy. The ruptured esophagus has often been abnormal before the rupture. Probably a normal esophagus can be ruptured by vomiting. Rupture of the esophagus from vomiting can occur only when the stomach is full. Abdominal pain, soreness and muscle spasm suggest intra-abdominal pathologic changes. Thoracic pain, dyspnea, cyanosis, emphysema of the neck, and physical signs in the chest following vomiting should suggest esophageal rupture. In rupture into the pleura, thoracotomy is imperative. The author reports a case of spontaneous rupture of the esophagus following vomiting.

Ulcer Treatment.—Tunick and Kling believe that chronic ulcers of the leg are caused by thrombosis and infiltration of the capillaries and stagnation in the smaller veins. A fibrotic ring surrounds the ulcer and cuts it off from the normal blood supply, thus preventing healing. Injection of physiologic solution of sodium chloride through the edges is able to break down the fibrotic ring and promote the formation of healthy capillaries and granulations. This method was also successful in the treatment of sloughs following the injection treatment of varicose veins by the sclerosing solutions; in fact, in the sloughs the authors treated by this method the healing was extremely rapid.

American Review of Tuberculosis, New York

24: 371-489 (Oct.) 1931

Results of Open-Air Treatment of Surgical Tuberculosis. W. S. Halsted. —p. 371.
Undulant Fever and Pulmonary Tuberculosis: Report of Two Missed Cases. A. L. Briskman, Colorado Springs, Colo.—p. 446.
Purpuric Manifestations in Tuberculosis. J. Greengard, Chicago.—p. 452.
Prognostic and Social Significance of Cavities in Pulmonary Tuberculosis. K. Fischel, Duarte, Calif.—p. 461.
Variations in Tuberculin Sensitiveness in Tuberculosis Patients. W. S. Schwartz and F. H. Heise, Trudeau.—p. 479.
Effect of Viosterol (Irradiated Ergosterol) on Calcification in Pulmonary Tuberculosis. J. Kaminsky and Doris L. Davidson, Rutland, Mass. —p. 483.

Annals of Medical History, New York

3: 465-582 (Sept.) 1931

Translation of Persian Monograph on Syphilis. C. Elgood, Teheran, Persia.—p. 465.
Bicentenary of Erasmus Darwin and His Relation to Doctrine of Evolution. E. B. Krumbhaar, Philadelphia.—p. 487.
From Epidauros to Galenos: Principal Currents of Greek Medical Thought. A. P. Cawadias, London.—p. 501.
Dr. J. C. Nott and Transmission of Yellow Fever. R. Wilson, Charleston, S. C.—p. 515.
Theodor Kocher. E. R. Wiese and J. E. Gilbert, Schenectady, N. Y. —p. 521.
Richard Den's Tomb. J. W. Shuman, Los Angeles.—p. 530.
The Adventurous Goldberger. R. P. Parsons, Washington, D. C.—p. 534.
Naming of Alopecia Areata. D. W. Montgomery, San Francisco.—p. 540.
Relation of Physicians to Early American Geology. W. Browning, Brooklyn.—p. 547.
Phineas Fletcher and Francis Quarles and the Purple Island of Phineas Fletcher. S. W. Lambert, New York.—p. 568.

Annals of Otol., Rhinol. and Laryngology, St. Louis

40: 651-986 (Sept.) 1931

Prevention of Deafness. G. M. Coates, Philadelphia.—p. 651.
Some Aspects of Certain of the Cranial Nerves. L. Larsell and E. M. Burns, Portland, Ore.—p. 661.
Parotid Fistulas in Mastoid Wound, with Report of Case. J. A. Babbitt, Philadelphia.—p. 673.
Aural Acuity and Brain Lesions: I. Audiometric Studies. D. W. Drury, Boston.—p. 682.
Gradual Change in Otologist's Conception of Conduction and Perception of Sound Impulses. F. P. Emerson, Boston.—p. 710.
Conduction of Air Sounds to Cochlea. A. G. Pohlman, St. Louis.—p. 717.
Auditory Tests in Cases of Marked or Complete Unilateral Deafness. C. C. Bunch, St. Louis.—p. 748.
Effect of Suppurative Disease of Temporal Bone on Certain of the Cranial Nerves. H. I. Lillie, Rochester, Minn.—p. 763.
Congenital Stenosis of Larynx: Three Cases. L. H. Clerf, Philadelphia. —p. 770.
Sudden Bilateral Paralysis of Larynx in Tuberculosis, with Report of Two Cases. R. M. Lukens, Philadelphia.—p. 780.
Factors Influencing Course of Mastoiditis in Infancy. D. M. Lierle and J. J. Potter, Iowa City.—p. 789.
Ivory Implants for Saddle Nose: Results in Fifty Cases. S. Salinger, Chicago.—p. 801.
Unilateral Loss of Vestibular Function Probably Due to Embolus. V. K. Hart, Charlotte, N. C.—p. 809.
Development of Organ of Hearing. L. K. Guggenheim, St. Louis.—p. 812.
Effect of Trypan Blue on Eosinophilia Experimentally Produced in Maxillary Sinus Mucosa. P. R. Nemours and W. F. Wenner, St. Louis.
Amateur Cinematography in Technical Teaching. A. W. Proetz, St. Louis.—p. 860.
Symposium on Cancer of Esophagus: Diagnosis and Treatment: I. Roentgenologic Aspects. E. C. Ernst, St. Louis.—p. 870.
II. Esophagoscopic Aspects. C. Jackson, Philadelphia.—p. 886.
III. Surgical Aspects. E. A. Graham and H. C. Ballon, St. Louis. —p. 895.
Tracheal and Esophageal Compression as Result of Adenomatous Goiter. H. J. Moersch, Rochester, Minn.—p. 909.
Papilloma of Lower End of Esophagus in a Child. R. McKinney, Memphis, Tenn.—p. 918.
Suppuration of Petrous Pyramid: Pathology, Symptomatology and Surgical Treatment. S. J. Kopetzky and R. Almour, New York.—p. 922.

Annals of Surgery, Philadelphia

94: 321-480 (Sept.) 1931

*Differentiation of Organic and Spastic Vascular Occlusions. G. de Takáts, Chicago.—p. 321.
*Compression of Lumbosacral Roots of Spinal Cord by Thickened Ligamenta Flava. E. B. Towne and F. L. Reichert, San Francisco.—p. 327.
Fractures of Upper Jaw and Malar Bone. R. H. Ivy and L. Curtis, Philadelphia.—p. 337.
Gastro-Intestinal Obstruction: Functional and Organic. G. Stout, Los Angeles.—p. 347.
Application and Interpretation of Blood Sugar Time Curves in Diagnosis and Treatment of Surgical Infections of Gallbladder and Biliary Passages. I. M. Rabinowitch and A. T. Basin, Montreal.—p. 354.
Rapid High-Temperature Deaths Following Biliary-Tract Surgery. F. G. Connell, Oshkosh, Wis.—p. 363.
Cholecystostomy, with Especial Reference to Postoperative Morbidity and Function. E. L. Eliason and L. K. Ferguson, Philadelphia.—p. 370.
Cancer of Uterus, with General Remarks on Pathologic Aspects of Cancer of Uterus. J. B. Deaver and S. P. Reimann, Philadelphia.—p. 381.
Aspiration of Joint Effusions. D. H. Kling, New York.—p. 389.
Internal Derangements of Knee. B. F. Buzby, Camden, N. J.—p. 397.
Behavior of Alcohol-Preserved Fascia Lata of the Ox, Autogenous Fascia and Chromicized Kangaroo Tendon in Dog and in Man. G. W. Horsley, Richmond, Va.—p. 410.
Improved Armamentarium for Fracture Reduction and Retention. E. P. Heller, Kansas City, Mo.—p. 422.

Differentiation of Vascular Occlusions.—De Takáts believes that the time honored classification of intestinal obstruction into mechanical and dynamic occlusions is admirably suitable to peripheral vascular occlusions. Mechanical or organic occlusions obstruct the lumen with a clot, constrict it through a narrowing of the wall, or compress it from the outside. Dynamic occlusions may be due to vessel spasm, but also to vessel paralysis, which produces stasis in erythromelalgia. The following classification has been used by him with advantage: (1) mechanical occlusions, which are divided into two groups, namely, acute (traumatic and embolic) and chronic (degenerative arteriosclerosis and inflammatory thrombo-angiitis obliterans), and (2) dynamic occlusions, which are also divided into two groups, namely, spastic (Raynaud's disease, cervical rib or spina bifida and endocrine disorders) and paralytic erythromelalgia. The question whether an arterial occlusion is organic or spastic in origin or whether an organic occlusion is aggravated by a superimposed spasm is of more than academic interest. The differentiation will be a decisive factor in treatment.

Compression of Lumbosacral Roots of Cord.—Towne and Reichert report a new cause of compression of the lumbosacral roots of the spinal cord and give two illustrative case histories. The condition is a proliferation of the ligamenta flava between laminae of the lumbar spine, which eventually causes a block in the cerebrospinal fluid circulation and compression of the cauda equina. The etiology is unknown. The pathologic process is a simple hypertrophy of the ligamenta flava. Extradural compression may be suspected from the position and shape of the iodized poppy-seed oil shadows. The symptoms of compression of the cauda equina were cured by surgical removal of the thickened ligaments.

Archives of Neurology and Psychiatry, Chicago

26: 247-468 (Aug.) 1931

Contralateral Flexor Reflex, Rebound Phenomena, Co-Contraction and Reciprocal Innervation in Spinal and in Decerebrate Cats. S. W Ranson and J. C. Hinsey, Chicago.—p. 247.
Elastic Layer in Cerebral Vessels: Studies of the New-Born and of Children. C. R. Tuthill, Buffalo.—p. 268.
Oligodendrogliomas: Clinicopathologic Study. S. T. Kwan and B. J. Alpers, Philadelphia.—p. 279.
Nonsuppurative Encephalomyelitis Accompanying Chickenpox. H. M. Zimmerman and H. Yannet, New Haven, Conn.—p. 322.
Time and Lineage Factors of Handwriting: Experimental Study Based on Specimens Secured from Two Hundred Normal Persons and from One Hundred and Forty-Eight Persons with Dementia Paralytica. C. Quinan, San Francisco.—p. 333.
Neurologic Complications of Pernicious Anemia—Effects of Treatment with Liver: Preliminary Report. W. Needles, New York.—p. 346.
Rigid Personality as Factor in Psychoses. W. Muncie, Baltimore.—p. 359.
Nonsuppurative, Nonepidemic Encephalitis Following Labor and in Puerperium: Case Probably Due to Cerebral Anoxemia. J. C. Yaskin, Philadelphia.—p. 371.

Archives of Ophthalmology, Chicago

6: 329-488 (Sept.) 1931

Surgical Entity of Muscle Recession. P. C. Jameson, Brooklyn.—p. 329.
*Lesions of Cornea and Conjunctiva in Erythema Exudativum Multiforme (Hebra): Three Cases with Grave Ocular Sequelae. J. H. Bailey, Brooklyn.—p. 362.
Advancements and Other Shortening Operations in Concomitant Squint. L. C. Peter, Philadelphia.—p. 380.
Ocular Convergence: Its Relation to Basal Metabolism and Endocrine Disease. L. L. Mayer, Chicago.—p. 389.
Tuberculous Keratitis: Decemetocele, Perforation, Repair: Case. B. W. Key, New York.—p. 392.
Unusual Corneal Opacity: Case. O. Sitchevska, New York.—p. 398.
Medullated Nerve Fibers Associated with Choroiditis: Case with Preliminary Studies on Cause of Appearance of Medullated Nerve Fibers in Retina. M. L. Berlinger, New York.—p. 404.
Metastasis in Sheath of Optic Nerve from Carcinoma of Stomach. I. Goldstein and D. Wexler, New York.—p. 414.
*Posttraumatic Tuberculous Uveitis. F. B. Fralick, Ann Arbor.—p. 420.

Erythema Exudativum Multiforme.—Bailey calls attention to the fact that erythema exudativum multiforme not infrequently implicates the eyes. The ocular pathologic process varies from hyperemia to destruction of tissue, in the latter instance often necessitating enucleation of the bulb. The corneal complications, which are responsible for the visual disaster, are delayed in their onset and insidiously progressive. In those cases in which, in spite of the virulence of the process, the eyeballs do not require removal, characteristic sequelae remain; namely, symblepharon, xerosis, a peculiar, stringy, viscid, conjunctival discharge and the aforementioned corneal lesions or the latter only. The disease is a distinct clinical entity and presents all the characteristics of an acute infectious disease. The caption herpes iris conjunctivae, under which the disease was early described, is doubtless the cause for its remaining in obscurity so long and being ignored in the textbooks. Lately, the author has been using large doses of bacterial vaccines intravenously with some promise of success.

Tuberculous Uveitis.—According to Fralick, tuberculous uveitis may develop in an apparently healthy person as a result of trauma to the eye. As a result of the trauma, a latent tuberculosis is aroused into activity and a tuberculous lesion becomes localized at the site of the injury, the micro-organisms having been carried there from a focus elsewhere in the body, or injury has simply aggravated a lesion which was previously present in the uvea but did not give symptoms. The generally recognized omnipresence of tubercle bacilli in the human system and the part played by the condition of the body as exemplified in general and local resistance cannot be ignored, and it is here that injury by reducing resistance comes in as a possible factor in the development of the tuberculosis.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 453-510 (Aug.) 1931

Clinician's Idea of Ultraviolet Dosage. N. E. Titus, New York.—p. 453.
Advances in Electrosurgery: Part I. H. A. Kelly, Baltimore.—p. 461.
Advances in Electrosurgery: Part II. Extensive and Inoperable Malignancy. G. E. Ward, Baltimore.—p. 463.
Effects of Super-High-Frequency Radio Current of Health of Men Exposed Under Service Conditions. W. H. Bell and D. Ferguson, Washington, D. C.—p. 477.

California and Western Medicine, San Francisco

35: 145-248 (Sept.) 1931

Some Costs of Illness Problems. J. H. Graves, San Francisco.—p. 145.
Some Economic Aspects of Modern Medicine. D. Crosby, Oakland.—p. 147.
Is Socialization Inimical to American Medicine? R. Brown, Santa Barbara.—p. 152.
Medical Economics: Present Activities, with Suggestions on Proposed Changes. J. R. French, Los Angeles.—p. 156.
Public Health Center. J. L. Pomeroy, Los Angeles.—p. 163.
Medical Social Work and Public Health Activities. F. L. Kelly, Berkeley.—p. 164.
Medical Licensure in California: Twenty-Five Years Ago and Today. C. B. Pinkham, San Francisco.—p. 167.
*Circulatory Changes During Spinal Anesthesia. M. H. Seevers and R. M. Waters, Madison, Wis.—p. 169.
Leukopenia—Review: Especial Reference to Agranulocytic Angina: Part II. O. H. P. Pepper, Philadelphia.—p. 173.
Mental Hygiene Survey of California: Part I. F. H. Allen, Philadelphia, and G. Myers, Los Angeles.—p. 177.
Paralysis from Spurious Jamaica Ginger Extract: Report on Los Angeles County Outbreak. F. G. Crandall, Whittier.—p. 180.
Postural Tensions for Normal and Abnormal Human Behavior: Their Significance. Part I. E. J. Kempf, New York.—p. 182.
Organized Tropical Medicine in Western United States. A. C. Reed, San Francisco.—p. 185.
Ocular Muscle Operations. J. L. McCool, San Francisco.—p. 189.
Relation of Pathology to Legal Medicine. Zera E. Bolin, San Francisco.—p. 195.
Head Injuries: Their Treatment. E. J. Morrissey, San Francisco.—p. 198.
Nephroptosis: Its Diagnosis and Treatment. J. J. Crane, Los Angeles.—p. 201.
Internal Ring in Oblique Inguinal Hernia. A. R. Dickson, Los Angeles.—p. 204.
Bladder Tumors: Clinical Manifestations: Cases. L. C. Jacobs and A. Epsteen, San Francisco.—p. 207.
Nongonorrheal Endocervicitis and Vaginitis. D. A. Dallas, San Francisco.—p. 212.
*Pylorectomy and Gastro-Enterostomy—in One Operation. A. W. Collins, San Francisco.—p. 216.
Lure of Medical History: A Twelfth-Century Treatise on Surgery S. L. M. Rosenberg, Los Angeles.—p. 220.

Spinal Anesthesia.—Seevers and Waters present experimental evidence that cellular oxygen want per se is one of the prime factors in the circulatory depression accompanying spinal anesthesia. A decrease in the oxygen content and an increase in the carbon dioxide content of the blood are present when the blood pressure is low in spinal anesthesia. Under high spinal anesthesia with some degree of intercostal paralysis, the circulatory condition is improved when oxygen-rich air is inhaled. The fall of blood pressure in spinal anesthesia tends to be synchronous with and proportional to the amount of intercostal muscle paralysis produced. Efficient two-phase artificial respiration will maintain normal blood pressure in the presence of cord section at the seventh cervical segment or motor and sensory root paralysis of the whole central nervous system by procaine hydrochloride. Under high spinal anesthesia, even when the blood pressure has been sustained with ephedrine, there is hypersensitivity to anoxemia. No primary asphyxial rise in systolic pressure occurs. Ephedrine in varying dosage tends to maintain normal blood pressure when administered previous to induction of high spinal block. After the blood pressure drop in high spinal anesthesia, ephedrine is less prompt and less effective if administered other than by intravenous injection. When low blood pressure is present from causes other than spinal paralysis, such as extensive hemorrhage or prolonged anoxemia, ephedrine may fail to restore blood pressure even when given intravenously. A high oxygen content of the blood augments the beneficial effect of ephedrine. The authors have not yet seen evidence of circulatory or other damage from ephedrine if the dose is limited to that sufficient to restore normal blood pressure, provided the tissues are adequately oxygenated. Cord section at the fifth thoracic segment or complete procaine paralysis below this point does not produce marked change in blood pressure in the normal dog. With the present knowledge, treatment of accidents following spinal anesthesia should consist of two-phase artificial respiration (preferably with oxygen) plus the intravenous administration of ephedrine in such dosage that the blood pressure is maintained at the preanesthetic level. Existing fluid deficit should of course be made good. Circulatory depression following high spinal anesthesia with intercostal paralysis is much more marked in animals anesthetized with barbital, ethylene or nitrous oxide, or having morphine and scopolamine as a preoperative sedative, than in the unanesthetized animal.

Pylorectomy.—According to Collins, diet and the removal of occult foci of infection may cure peptic ulcers in early stages. Gastro-enterostomy has proved effective in mild cases of hyperacidity when medical care has failed. Gross pathologic changes in or on either side of the pylorus must be removed by excision. Cancer of the stomach is more common than in any part of the body. Ulcer of the pylorus usually precedes carcinoma. Removal of the pylorus with part of the stomach and duodenum removes the seat of predilection to cancer. Gastro-enterostomy leaves two openings, one of which will cease to function. Gastro-enterostomy may produce a vicious circle and also make the patient more prone to jejunal ulcer. Removal of ulcer and cancer-bearing area and gastro-enterostomy at one operation is a rational and logical operation if the technic can be simplified to remove all danger of hemorrhage, leakage and prolonged complicated operative procedures. The author believes the technic he describes is so simple, rapid and devoid of possible postoperative complications that the operation can be completed as a one-stage procedure.

Canadian Medical Association Journal, Montreal

25: 255-384 (Sept.) 1931

*Jaundice and Application of van den Bergh and Urobilinogen Tests. I. M. Rabinowitch, Montreal.—p. *255.*
Metastatic Growths in Ureter: Three Cases. D. W. MacKenzie and M. Ratner, Montreal.—p. *265.*
*Method of Palliative Treatment of Carcinoma of Esophagus. D. W. G. Murray, Toronto.—p. *271.*
Indications for Cholecystic Surgery. A. R. Monroe, Edmonton.—p. *276.*
Lumbar Ramisection and Ganglionectomy. D. U. McGregor and A. I. Olmstead, Hamilton, Ont.—p. *279.*
Importance of Anomalies of Superior Vena Cava in Man. J. Beattie, Montreal.—p. 281.
Treatment of Hypertension. J. Meakins and W. DeM. Scriver, Montreal.—p. 285.
Treatment of Acute Intestinal Intoxication. Pearl Summerfeldt, T. G. H. Drake and A. Brown, Toronto.—p. 288.
*Simple and Effective Treatment for Infection with Trichomonas Vaginalis. J. R. Goodall, Montreal.—p. *292.*
*Gonococcal Vaccination in Cases of Infantile Vulvovaginitis. W. G. Terwilliger, Montreal.—p. 294.
Urinary Infections of Pregnancy. R. A. McComb, Toronto.—p. 296.
*Lead Poisoning in Brass and Bronze Foundries. F. G. Pedley and R. V. Ward, Montreal.—p. 299.
Some Remarks on Chronic Suppurative Otitis Media: Its Prevention and Treatment. J. R. Page, New York.—p. *303.*
Exophoria and Esophoria. A. E. MacDonald, Toronto.—p. 306.
Oxygen in Treatment of Tuberculosis. H. T. R. Count, Rochester, Minn.—p. 309.
Roentgen Rays as Complement to Actinotherapy. H. Humphris, London. —p. 311.
Unexpected Autopsy Findings in Unexpected Deaths. W. J. Deadman, Hamilton, Ont.—p. *317.*

Jaundice.—Rabinowitch presents in brief form a summary of the knowledge of jaundice from the point of view of bile pigment formation. That laboratory data are sometimes incompatible with clinical observations led to the combined use of the van den Bergh and urobilinogen reactions and a new method of interpreting the results. So far, at least, the theory appears to fit the clinical facts.

Carcinoma of Esophagus.—According to Murray, intubation of carcinoma of the esophagus, especially in its middle third, is a palliative measure that can be carried out with little danger. It provides relief from symptoms, i. e., obstruction to swallowing and mucus in the throat, for periods up to ten months. The individual is able to take any sort of food naturally and enjoy society generally. With one exception ten patients observed by the author were able to return to their former occupations for periods varying from three to ten months.

Trichomonas Vaginalis Infection.—The treatment presented by Goodall was prompted by the ineffectiveness and long duration of the generally accepted treatment. It consists in using an acid antiseptic in a medium which will slowly dissolve, thereby keeping the vagina in a constant bath of disinfectant. These two factors are obtained by using vaginal cones of 1 per cent trinitrophenol. A cone should be inserted high up in the vault on retiring. A simple neutral or acid douche should be used once daily. After the third treatment with the cone, the whole vulva becomes stained a pale yellow, owing to the trinitrophenol. Ordinarily there is a strong tendency for the disease to recur immediately after the next or subsequent menstruation; a renewal of the cone treatment brings this recrudescence under control. The author so far has treated twenty-two patients by this method—four of these during pregnancy; three in the puerperium. The results have been uniformly successful. The average course of treatment is from five to ten days, and owing to its great simplicity it is not irksome. The pruritus usually disappears during the first three treatments and the pus is generally absent after the fifth or sixth day. Desquamation goes on for some time afterward. By the tenth day the mucosa has taken on a healthy appearance. The treatment may also be carried out during pregnancy, provided it is not too near the period of the expected onset of labor The distress from trichomonas infection during pregnancy is worse than at any other time. Should treatment begin just before menstruation, the daily insertion of the cone should continue throughout the period and for some days afterward. It is the author's opinion that trinitrophenol is a specific in trichomonas infection, owing to the satisfactory, rapid and almost constantly permanent results obtained from its use.

Infantile Vulvovaginitis.—Terwilliger reports the results he obtained in a baby hospital in the treatment of forty-two infants with vulvovaginitis by means of gonococcal vaccination When the infected children received their second or third dose of vaccine they showed an exacerbation of signs and symptoms; then they began to improve and in sixteen cases a cure resulted. During treatment of infected patients by vaccine, fresh cases sent to the ward did not cause an exacerbation of signs and symptoms as was the case before vaccine therapy was started. By the provocative effect of vaccine therapy, silent carrier cases were converted into florid clinical cases, thus making the diagnosis of such cases evident. All noninfected children given the vaccine remained free from infection. It was difficult to measure the degree of immunity produced. However, seven months after the last inoculation these patients were still uninfected and the institution was free from infection for the first time in five years.

Lead Poisoning.—Pedley and Ward report that thirty-eight men engaged in the founding of high lead bronze were sent to the Montreal General Hospital for various complaints. Twenty-four of these were found to be suffering from acute lead poisoning, nine others showed definite evidence of lead absorption, and only five showed no signs of plumbism. Three brass polishers who succeeded one another on the same emery wheel became poisoned with lead. Blood smears of twenty-six men engaged in the polishing of low lead brass and bronze (less than 6 per cent) were examined. Five of these showed stippled cells, well in excess of 200 per million red cells. The analysis of air in one foundry showed the concentration of lead in the air to be about 0.85 mg. per cubic meter. The authors' review of the literature of chronic brass poisoning indicated that many cases of chronic disability occur among founders and polishers of brass, and that the symptoms recorded are closely allied to those of lead poisoning. It is their belief that lead plays an important part in the disease picture variously diagnosed as brass poisoning, bronze poisoning and copper poisoning.

Canadian Public Health Journal, Toronto

22: 379-432 (Aug.) 1931

Radium—Its Proved Uses and Limitations in Therapy. G. E. Richards, Toronto.—p. *387.*
Study of Epidemic Catarrhal Jaundice. R. Fraser, Sackville, New Brunswick.—p. *396.*
Classification of Maternal Deaths. Helen Macmurchy.—p. *412.*

22: 433-484 (Sept.) 1931

Control of Communicable Diseases in Rural Areas by Immunization. F. W. Jackson, Manitoba.—p. 433.
*Further Studies of Etiology of Acute Intestinal Intoxication in Infants and Children. Marion M. Johnston, A. Brown and Mildred J. Kaake, Toronto.—p. 441.
Grosse Isle Quarantine Station. J. D. Pagé, Ottawa.—p. 454.
B C G Vaccine. A. C. Rankin, Alberta.—p. 459.
Refrigeration and Its Health Aspect. G. H. Ferguson, Ottawa.—p. 457.

Acute Intestinal Intoxication in Infants and Children.—In 67 cases of sickness in infants hospitalized under the clinical diagnosis of acute intestinal intoxication in 53, infectious diarrhea in 1, fermentative diarrhea in 4, dysentery in 1, and under other terms in 8, the stool characteristics, in regard to blood and pus, are compared by Johnston and her assistants with the bacteriologic observations and with the clinical diagnoses. Comparable data are given for 29 older children with similar but more varied diagnoses. Blood and pus, or either of these, were found as often under one clinical diagnosis as under any other but were absent in some cases of proved dysentery infection. It is shown, therefore, that the presence or absence of blood or pus is not an infallible criterion on which to base a differential diagnosis. From the 67 infants, 10 strains of Bacillus dysenteriae Sonne, 6 of B. dysenteriae Hiss-Russell, 5 of B. dysenteriae Flexner, 26 of B. schmitzii, 4 of B. asiaticus, and 3 of B. paratyphosus B were isolated. From the 29 older children, 10 strains of B. dysenteriae Sonne, 4 of B. dysenteriae Hiss-Russell, 3 of B. dysenteriae Flexner, 3 of B. schmitzii, and 1 of B. paratyphosus B were recovered. Similar organisms were obtained from cases of diarrhea occurring in infants brought to the outpatient department and to child welfare clinics. The carrier state of dysentery infection in infants and adults was demonstrated. Flies were shown to be possible vectors of these organisms. The same species of pathogenic organisms was isolated from infants in the hospital and from household contacts who, in some cases only, gave a history of recent diarrhea. On the basis of their observations the authors conclude that acute intestinal intoxication is an enteral infection; the term is synonymous with infectious diarrhea, dysentery, summer diarrhea and so on. Many cases of so-called fermentative diarrhea are of the same type. The causative organisms are members of the colon-paratyphoid paradysentery group.

Endocrinology, Los Angeles

15: 265-356 (July-Aug.) 1931

*High Incidence of Hypertension in Toxic Goiter and in Myxedema. W. O. Thompson, Chicago; Lois F. N. Dickie, A. E. Morris, Worcester, Mass., and B. H. Hilkevitch, Chicago.—p. 265.
*Bearing of Recent Work on Anterior Pituitary Hormones on Gynecologic Problems, with Especial Reference to Disorders of Menstruation. E. Novak, Baltimore.—p. 273.
Notes on Relation of Iodine to Goiter. J. F. McClendon, Minneapolis. —p. 281.
Case of Diabetes Insipidus Occurring as Sequel to Epidemic Encephalitis. R. W. Whitehead and W. Darley, Denver.—p. 286.
Familial Hypothyroidism. E. K. Shelton, Santa Barbara, Calif.—p. 297.
Studies on Pituitary Functions. O. Riddle, Cold Spring Harbor, N. Y. —p. 307.
Placental Hormones. J. B. Collip, D. L. Thomson, J. S. L. Browne, M. K. McPhail and J. E. Williamson, Montreal.—p. 315.
Variations in Susceptibility of Albino Rat to Tetania Parathyropriva. M. M. Hoskins, New York.—p. 324.
Preparation of Adrenal Cortical Hormone. J. J. Pfiffner and W. W. Swingle, Princeton, N. J.—p. 335.

Hypertension in Goiter and Myxedema.—According to Thompson and his associates, the incidence of hypertension appears to be greater in patients with toxic goiter, and in patients with myxedema after the metabolism has been restored to normal by appropriate treatment, than in the general population. A diastolic pressure of 100 mm. of mercury or over in both thyrotoxicosis and myxedema before treatment makes it practically certain that a hypertension exists independently. In patients with toxic goiter, if the systolic pressure is 190 mm. of mercury or over before treatment, it is probable that it will be 150 or over after treatment. In ten of fifty-three cases in which a hypertension was present after treatment, the systolic pressure rose to the hypertensive level only after the basal metabolism had been restored to normal. In about 45 per cent of the cases in which the diastolic pressure ranged from 70 to 99 mm. of mercury before treatment, the systolic pressure was 150 or more after treatment. In no case in which the systolic pressure was below 130 mm. of mercury before treatment, and in no case in which the diastolic pressure was below 60, was a hypertension present after treatment.

Anterior Pituitary and Menstruation.—Novak believes that in the treatment of amenorrhea the most logical plan would be the hypodermic injection of folliculin followed by similar administration of progestin. Since the latter is not available for human use, its place may perhaps, for the time being, be taken by anterior pituitary luteinizing hormone. This plan of treatment produces no permanent stimulating effect on the ovary. There is need for a rational treatment of the adiposogenital dystrophy. For the present one must content oneself with the empiric or semiempiric administration of thyroid extract, perhaps some form of ovarian therapy for the amenorrhea, and rather random efforts at a causal therapy by the use of pituitary preparations. In functional bleeding Novak and Hurd have obtained excellent results in a large series of cases, many of the patients being young women in whom the only alternative would have been surgery or radiotherapy. The treatment consists of the intramuscular injection of a luteinizing hormone prepared from the urine of pregnant women, by a new technic (to be reported). Other subjects discussed as illustrating the application of scientific research to clinical problems are the pregnancy tests of Aschheim and Zondek, Friedman and others. These are of value also in determining the completeness or incompleteness of removal of trophoblastic tissue in operations for incomplete miscarriage, hydatidiform mole or chorio-epithelioma.

Georgia Medical Association Journal, Atlanta

20: 335-373 (Sept.) 1931

Common Errors in Treatment of Heart Disease. J. B. Herrick, Chicago. —p. 335.

Illinois Medical Journal, Chicago

60: 181-268 (Sept.) 1931

Rôle of Prophylaxis in Obstetrics. F. F. Maple, Chicago.—p. 193.
*Lowering Mortality After Operations on Biliary Tract. E. A. Graham, St. Louis.—p. 196.
Medical Profession and Health Department. A. J. McLaughlin, Chicago. —p. 202.
*Tularemia: Summary of Recent Investigations and Consideration of the Dayton Experience with Eighty-Eight Cases. W. M. Simpson, Dayton, Ohio.—p. 207.
Tuberculosis of Skin. C. White, Chicago.—p. 215.
Heart Disease, Prevention and After-Care. I. C. Riggin, New York. —p. 219.
Lymphosarcoma of Cecum: Case. L. Handelman, Chicago.—p. 224.
Studies in Catatonic States: Effects of Treatment on Colloids of Blood in Catatonics. Leah Lurie, F. LeBlanc and C. F. Read, Elgin.—p. 277.
*Regarding Etiology of Chickenpox. H. MacDonald and Edith MacDonald, Evanston.—p. 230.
Undulant Fever: (Mimic Disease). R. O. Stites, Industry, Ill.—p. 232.
Blood Chemistry, Toxemia and Mechanics of Advanced Intestinal Obstruction, with Deductions on Treatment. W. D. Gatch, Indianapolis.—p. 236.
Needless Arm Injuries. D. F. Clark, Evanston, Ill.—p. 244.
Symptoms and Treatment of Pyelitis. J. W. Visher, Evansville, Ind. —p. 245.
Diagnosis of Spinal Cord Lesions. E. Sachs, St. Louis.—p. 248.
Ophthalmia Neonatorum. N. K. Lazar, Chicago.—p. 250.
Value in Bedside Nursing in Public Health Program. Margaret McGreevy, La Salle.—p. 254.
Roentgen Ray in Diagnosis of Thoracic Pathology. H. H. Cole, Springfield.—p. 260.
Evaluation of Diagnostic Methods in Gastro-Intestinal Disease. L. D. Snorf, Chicago.—p. 262.

Lowering Mortality After Operations on Biliary Tract.—Graham believes that the condition of the liver is a matter of great importance in determining the operative mortality after cholecystectomy. Even in cases without jaundice and without a stone in the common duct the liver is occasionally so badly damaged and its functions are accordingly so much impaired that it seems to be impossible for a patient to survive even a simple cholecystectomy. The present methods of estimating the condition of the liver are doubtless crude in comparison with methods which will be available in the future. The determination of the excretory function of the liver by means of such a substance as phentetiothalein sodium seems to be of considerable help in gaging the suitability of a patient for operation. The administration of adequate amounts of carbohydrate in order to insure a good reserve of glycogen in the liver will so improve the hepatic condition that a dangerous case will be converted into a safe one. There is ordinarily a high incidence of pulmonary atelectasis after operations on the gallbladder. This can be prevented to a great extent by the postoperative administration of carbon dioxide. By utilizing these methods of gaging the operative mortality and of improving the condition of the patient, the author's own hospital mortality after the operation of cholecystectomy has been reduced from 6 per cent to 0.4 per cent.

Tularemia.—Simpson calls attention to the fact that within the past five years tularemia has risen from comparative obscurity to the position of a major public health problem.

Recent reports from Norway and Russia, together with previous reports from Japan and England, indicate that the disease is probably world-wide in its distribution. Newly discovered animal hosts and insect vectors indicate the ever-widening spread of the disease and further insure its perpetuation. Many new sources of human infection other than the wild rabbit have been described. Eighty-eight cases of tularemia have been encountered by the author, eighty-four of which have occurred in or about Dayton, Ohio. This represents the largest number of cases to be discovered in such a circumscribed area. The gross and microscopic pathologic changes in tularemia as it occurs in man and animals are briefly described, together with a description of the experimental production of the ulceroglandular, oculoglandular and glandular forms of the disease in guinea-pigs. Eight recently encountered cases of tularemia are reported for the first time. The use of immune human serum appears to have a favorable effect on the course of the disease.

Etiology of Chickenpox.—Confirmatory to the report of Auricchio, the MacDonald's found a micro-organism (Micrococcus varicellae) in smear preparations of intact vesicle lymph and successfully grew it in pure cultures from the vesicles and blood of seven successive cases of chickenpox. They report the successful production of chickenpox in one child on the eighteenth day after oral administration of a pure culture. A morphologically and culturally similar micrococcus was regained from the patient's vesicles and blood. Complement fixation tests on convalescent blood, with the micrococcus as antigen were positive. While the possibility of the presence of an additional and invisible virus in the medium was not eliminated, it appears reasonable to believe that the organism described is pathogenic and the causative bacterium of chickenpox.

Journal of Comparative Psychology, Baltimore

12: 1-135 (June) 1931

Studies in Individual Differences in Maze Ability: II. Determination of Individual Differences by Age, Weight, Sex and Pigmentation. R. C. Tryon, San Francisco.—p. 1.
Relation of Electrical Changes in Brain to Reflex Activity. L. E. Travis and R. Y. Herren, Iowa City.—p. 23..
Relative Efficacy of Form and Background in Chick's Discrimination of Visual Patterns. N. L. Munn, Pittsburgh.—p. 41.
Forward-Going Tendency in Maze Running. J. F. Dashiell and A. G. Bayroff, Chapel Hill, N. C.—p. 77.
Studies in Individual Differences in Maze Ability: III. Community of Function Between Two Maze Abilities. R. C. Tryon, San Francisco. —p. 95.
Note on Fear Behavior in Young Rats, Mice and Birds. W. N. Kellogg, Bloomington, Ind.—p. 117.
Behavior of Fish in Elevated Water-Bridges Connecting Adjoining Aquaria. W. R. Miles, San Francisco.—p. 123.
Standardizing Electric Shocks for Rats. K. Dunlap, Baltimore.—p. 133.

Journal of Experimental Medicine, New York

54: 295-451 (Sept.) 1931

On Specificity of Serologic Reactions with Simple Chemical Compounds (Inhibition Reactions). K. Landsteiner and J. van der Scheer, New York.—p. 295.
Typhus Fever: III. Behavior of Rickettsia Prowazeki in Tissue Cultures. H. Pinkerton and G. M. Hass, Boston.—p. 307.
Differentiation Between Certain Toxic Properties of Filtrates of Hemolytic Staphylococcus Aureus. J. T. P. Weld and Anne Gunther, New York.—p. 315.
Growth and Death of Tissue Cultures Exposed to Supranormal Temperatures. G. Pincus, Cambridge, Mass., and A. Fischer, Berlin-Dahlem, Germany.—p. 323.
Induced Development and Histogenesis of Plasma Cells. F. R. Miller, New York.—p. 333.
Swine Influenza: I. Experimental Transmission and Pathology. R. E. Shope, Princeton, N. J.—p. 349.
Id.: II. Hemophilic Bacillus from Respiratory Tract of Infected Swine. P. A. Lewis and R. E. Shope, Princeton, N. J.—p. 361.
Id.: III. Filtration Experiments and Etiology. R. E. Shope, Princeton, N. J.—p. 373.
Specific Cytotoxic Action of Tuberculin in Tissue Culture. J. D. Aronson, Philadelphia.—p. 387.
Histopathology of Nutritional Encephalomalacia of Chicks. A. Wolf and A. M. Pappenheimer, New York.—p. 399.
Production of Refractory State as Concerns Shwartzman Phenomenon by Injections of Venom of Moccasin Snake (Ancistrodon Piscivorus). S. M. Peck and H. Sobotka, New York.—p. 407.
Is Rat Dermatitis Consequent on Vitamin B_2 (G) Deficiency True Pellagra? S. S. Gurin and W. H. Eddy, New York.—p. 421.
Chemo-Immunologic Studies on Conjugated Carbohydrate Proteins: IV. Synthesis of *p*-Aminobenzyl Ether of Soluble Specific Substance of Type III Pneumococcus and Its Coupling with Protein. W. F. Goebel and O. T. Avery, New York.—p. 431.
Id.: V. Immunologic Specificity of Antigen Prepared by Combining the Capsular Polysaccharide of Type III Pneumococcus with Foreign Protein. O. T. Avery and W. F. Goebel, New York.—p. 437.
Some Ultraviolet Photomicrographs of B. Subtilis. R. W. G. Wyckoff and Adrian L. Ter Louw, New York.—p. 449.

Journal of General Physiology, Baltimore

15: 1-118 (Sept.) 1931

Viscosimetric Method of Estimating Enzyme Concentration with Especial Reference to Amylase. W. R. Thompson, C. E. Johnson and R. Hussey, New Haven, Conn.—p. 1.
Effect of Radiations from Mercury Arc in Quartz on Enzymes: II. Effect of Ultraviolet Radiation on Amylase in Solution. W. R. Thompson and R. Hussey, New Haven, Conn.—p. 9.
Geotropic Excitation in Helix. H. Hoagland and W. J. Crozier, Cambridge, Mass.—p. 15.
Presence of Gelatin-Liquefying Enzyme in Crude Pepsin Preparations. J. H. Northrop, Princeton, N. J.—p. 29.
Studies on Milk Secretion: Influence of Inanition. J. W. Gowen and E. R. Tobey, Princeton, N. J.—p. 45.
Mechanism of Milk Secretion: Influence of Insulin and Phlorhizin. J. W. Gowen and E. R. Tobey, Princeton, N. J.—p. 67.
Temperature Characteristics for Production of CO_2 by Germinating Seeds of Lupinus Albus and Zea Mays. P. Tang, Cambridge, Mass. p. 87.
Rôle of Phosphate in Biologic Oxidations. M. Rarmore and J. M. Luck, Palo Alto, Calif.—p. 97.
Insensitivity of Paramecium to Cyanide and Effects of Iron on Respiration. C. S. Shoup and J. T. Boykin, Nashville, Tenn.—p. 107.

Journal of Lab. & Clinical Medicine, St. Louis

16: 1151-1260 (Sept.) 1931

Influence of Yeast on Protein Metabolism in Normal and Depancreatized Dogs. E. S. Nasset, H. B. Pierce and J. R. Murlin, Rochester, N. Y. —p 1151.
Relationship of Type of Radiant Energy to Its Activation of Vitamins in Yeast. L. H. Horstad, St. Louis.—p. 1169.
Notes on Bacillus Welchii. A. S. Schlingman, Detroit.—p. 1175.
Arteriosclerosis of Coronary Arteries: Clinicopathologic Study. D. C. Sutton and W. W. Brandes, Chicago.—p. 1185.
Case Report of Extensive Atrophy of Subcutaneous Fat Following Repeated Injections of Insulin. J. R. Williams, Rochester, N. Y. —p. 1191.
Electrocardiographic Studies on Chick Embryo Hearts: I. A Technic for Recording Electrical Changes in Isolated Chick Embryo Hearts. H. Pollack, Boston.—p 1194.
Id: II. Amplifying Device for Use with String Galvanometer. H. Pollack, M. Dionne and E. Schafer, Boston.—p. 1198.

Journal of Nervous & Mental Disease, New York

74: 265-392 (Sept.) 1931

Consideration of Sacral Epidural Injections for Relief of Sciatic Pain. F. G. Lindemulder, Ann Arbor, Mich.—p. 265.
Thyroid Psychosis: Difficulties in Diagnosis. S. D. Ingham and J. M. Nielsen, Los Angeles.—p. 271.
Insulin and Nonspecific Therapy—A Common Mechanism: "The Nonspecific Syndrome." J. I. Margolis, New York.—p. 278.
Case of Illuminating Gas Poisoning with a Number of Neuropsychiatric Sequelae, the Main Being Peripheral Neuritis and Parkinsonism. J. Notkin and N. Savitsky, New York.—p. 293.
Isolated Bilateral Trigeminal Nerve Disease Presumably Syphilitic in Origin. A. M. Ornsteen, Philadelphia.—p. 297.
Translations on Interrelationships Between Psychic and Vegetative Functions. W. R. Hess, Zurich, Switzerland.—p. 301.

Journal of Nutrition, Springfield, Ill.

4: 305-442 (Sept.) 1931

Basal Metabolism Standards: Statistical Comparison of Their Prediction Values. R. L. Jenkins, Chicago.—p. 305.
Effect of Vitamins A and D on Resistance to Infection. L. C. Boynton and W. L. Bradford, Rochester, N. Y.—p. 323.
Studies in Protein Nutrition of the Chick: I. Influence of Different Protein Concentrates on the Growth of Baby Chicks, When Fed as Source of Protein in Various Simplified Diets. W. D. McFarlane, W. R. Graham, Jr., and G. E. Hall, Guelph, Canada.—p. 331.
Effects of Radiant Energy on Experimental Hemolytic Anemia. H. S. Mayerson and H. Laurens, New Orleans.—p. 351.
Physiologic Effect of Rations Restricted Principally or Solely to Alfalfa Plant: II. Cystine as Limiting Factor in Nutritive Value of Alfalfa Proteins. J. R. Haag, Corvallis, Ore.—p. 363.
Determination of Basal Metabolism of Albino Rat from Insensible Loss of Weight. J. A. Greene and R. P. Luce, Ann Arbor, Mich.—p. 371.
Factors Which Determine Renal Weight: XII. Nitrogen Intake as Varied by Addition of Urea to Diet. Lois Lockard MacKay, E. Mackay and T. Addis, San Francisco.—p. 379.
Glycogen Formation and Respiratory Quotients in Rats Fed Exclusively on Fat. D. E. Gregg, Rochester, N. Y.—p. 385.
Food Intake in Pregnancy, Lactation, and Reproductive Rest in Human Mother. Carroll F. Shukers, Icie G. Macy, Eva Donelson, Betty Nims and Helen A. Hunscher, Detroit.—p. 399.
Glycogen and Fat Formation in Rats: V. Carbohydrate-Free Diets. Esther M. Greisheimer, Minneapolis.—p. 411.
Distribution of Manganese in Foods. W. H. Peterson and J. T. Skinner, Madison, Wis.—p. 419.

Journal of Urology, Baltimore

26: 327-498 (Sept.) 1931

*Acquired Renal Dystropia or Movable Kidney. F. Kidd, London. —p. 327.
*Laboratory Methods for Diagnosis of Gonorrhea in Male. R. D. Herrold, Chicago.—p. 379.
Acute Gonorrheal Urethritis: Its Prevention and Treatment. E. G Ballenger, O. F. Elder and H. P. McDonald, Atlanta, Ga.—p. 387.
Diagnosis and Treatment of Complications of Acute Gonorrhea in Male. H. S. Jeck, New York.—p. 395.
Chronic Prostatitis. H. Culver, Chicago.—p. 401.
*Stricture of Urethra. J. R. Caulk, St. Louis.—p. 407.
Chronic Seminal Vesiculitis. J. F. McCarthy, New York.—p. 415.
*Ureteroheminephrectomy in Infancy. M. F. Campbell, New York.—p. 433.
Gunshot Wound of Ureter: Case. R. M. le Comte, Washington, D. C.. —p. 447.
Experiences with Submucous Fibrosis of Bladder. G. G. Smith, Boston. —p. 455.
Encrusted Cystitis. W. M. Kearns and S. M. Turkeltaub, Milwaukee. —p. 465.
Case of Osteomyelitic Abscess with Fistula into Urinary Bladder. A. de la Pena, Madrid, Spain.—p. 473.
Two Cases of Leiomyoma of Prostate. F. Hinman and J. J. Sullivan, San Francisco.—p. 475.
Improved Lighting of Young's Punch and Diathermy to Control Bleeding Following the Punch Operation. H. L. Tolson, Cumberland, Md. —p 485.
New Cystoscope for Retrograde Fulguration. T. M. Davis, Greenville, S. C.—p. 491.
New Self-Retaining Catheter. S. L. Lemel, Cleveland.—p. 497.

Acquired Renal Dystopia.—Kidd reviews the types of renal dystopia and formulates a fresh hypothesis which attributes the most important pathologic type to the persistence from neolithic times of a racial stock of Egyptian origin and descent. The importance of the intra-abdominal pressure is minimized, and the importance of the suspensory ligaments of the kidney is emphasized. The pathology of movable kidney is placed on a fresh plane and is brought into line with the pathology of sprains and deformities. Pyelography is advocated as the only real guide to treatment and as the indicator of the reasons for success and failure of operations. The author describes an operation for renal dystopia and outlines the points essential for success in operating.

Diagnosis of Gonorrhea in Male.—Herrold believes that single stain smears are sufficient in new infections in the presence of acute clinical symptoms and signs. The absence of negative smears in the presence of suggestive clinical symptoms should be followed by further examinations before a definite negative diagnosis is made. The presence of large numbers of bacteria, with or without typical intracellular or extracellular diplococci in the single stain, should be corroborated during the same examination by a gram stain. If all observations then suggest a gonorrheal infection, it is advisable that culture should be made. If the culture proves negative, provocative measures may be used more safely, after which more smears and cultures should be made. The types of patients most frequently in this class are: first, nongonorrheal infections associated with stricture or chronic prostatitis; second, those individuals who have had some previous local medication, and, third, the patient with a definite history of infection during the previous year. In suspected exacerbations of chronic infections when smears are doubtful the patient should not be subjected to instrumentation, massage or provocative measures until after further clinical observation. Smears and cultures are complementary, and positive smears may occur with negative cultures, and, conversely, positive cultures may be obtained in the presence of negative smears. Gonococci sometimes exist in a saprophytic state and it is here that cultures are of the greatest usefulness. The value of cultures is directly proportional to the care in the collection of specimens, and the efficiency of the medium, together with the application of optimal physical conditions for growth. Reference is made to a simplified and satisfactory blood agar medium for the growth of the gonococcus. As a rule, nothing can be learned by serologic methods that cannot be found better by smears and cultures, but serologic tests may be useful in the differentiation of systemic complications, associated with so-called postgonorrheal infections in the genito-urinary tract. Similarly, skin reactions are inferior to smears and cultures as diagnostic procedure. In the male, other bacteria that need most common differentiation from gonococci in smears and cultures are variants of staphylococci and other gram positive diplococci with similar morphology.

Stricture of Urethra. — Caulk summarizes the salient features of the subject of stricture of the urethra thus: Gonorrhea is the most frequent cause of stricture formation in the urethra. Injudicious treatment with strong irritating medicaments predisposes to its development. Appropriate treatment during the acute stage and supervision during the chronic stage with particular attention to the adnexa minimizes the incidence of its occurrence. Latency and chronicity of infection must be combated by treatment of the vesicles and prostate. Muscle spasm is apt to prove deceptive in assessing the nature of a stricture. Whenever possible, strictures should be dilated gradually and repeatedly. Divulsion is to be condemned. Operative procedures should usually be reserved for its complications. Because of the pronounced tendency of urethral regeneration, plastic procedures except in rare instances are seldom necessary. The recurrence of stricture is likely. The time of recurrence is difficult to predict; hence periodic supervision is essential. The mortality of stricture is low and occurs usually in neglected cases and results from sepsis or renal disease.

Ureteroheminephrectomy in Infancy.—Campbell reports two cases of female infants aged 6 and 28 months in whom ureteroheminephrectomy was successfully carried out for ureterohemipyonephrosis. An ectopic ureteral opening was present in one and at first served to increase the diagnostic difficulties. Ectopic ureteral openings because of urinary leakage usually cause the child to be classed as enuretic. The patient is the seventh reported of this type in whom ureteral ectopy did not result in urinary incontinence. In case 2, hydroureter and hydropyonephrosis existed above the site of a congenital ureterovesical junction stricture. The treatment of hemipyonephrosis is surgical. Even infants withstand radical operations on the urinary tract surprisingly well if strict attention is paid to preoperative and postoperative care; one should bear in mind that severe acidosis is likely to develop during the first forty-eight hours following operation.

Kansas Medical Society Journal, Topeka

32: 289-324 (Sept.) 1931

Sinus Problem. H. E. Marshall, Wichita.—p. 289.
Vitamins. J. A. Wheeler, Newton.—p. 292.
Migraine and Its Treatment with Ketogenic Diet. W. C. Menninger, Topeka.—p. 298.
Spinal Fluid Cell Counts—Staining Solution. D. V. Conwell, Halstead. p. 301.
Case of Filaria Sanguinis-Hominis. H. W. Gilley, Ottawa.—p 302.
Letters from a Kansas Doctor to His Son. J. A. Dillon, Larned.—p. 304.

Kentucky Medical Journal, Bowling Green

29: 451-520 (Sept.) 1931

Treatment of Morphine Addiction by Blister Fluid Injection. W. D. Reddish, Lexington.—p. 504.
Gynatresia: Case. W. E. Fallis, Louisville.—p. 507.
Some Newer Aspects of Bacterial Allergy. G. M. Lawson, Louisville. —p. 509.
Allergy Due to Cutaneous Absorption. F. A. Simon, Louisville.—p. 510.
Pollens. A. C. McCarty, Louisville.—p. 512.
Food as Related to Allergy. L. Palmer, Louisville.—p. 515.

Laryngoscope, St. Louis

41: 591-662 (Sept.) 1931

Hemorrhage Into Esophagus at Birth and in Adult. H. P. Mosher, Boston.—p. 591.
Preliminary Report of Study of Philogenesis and Ontogenesis of Foot-plate of Stapes, with Theory of Otosclerosis. L. K. Guggenheim. —p. 623.
Prevention of Acute Surgical Mastoiditis. A. Wagers, Philadelphia. —p. 630.
Report of Case of Acute Mastoiditis Complicated by Internal Hydrocephalus. F. C. Carr, New York.—p. 635.
Mastoiditis in Presence of Unsuspected Diabetes. Case.—p. 638.
Acute Mastoiditis Associated with Hematuria. M. S. Ersner and E. K. Mitchell, Philadelphia.—p. 646.
Carcinoma of Larynx: Unusual Case. L. H. Clerf, Philadelphia.—p. 650.
Exposure of Simulated Deafness by Bone Conduction Tests. B. M. Becker, Brooklyn.—p. 653.
Lymph Hemangioma of Nose, Palate and Tongue. M. A. Zacks, Philadelphia.—p. 656.

Maine Medical Journal, Portland

22: 153-172 (Sept.) 1931

Treatment of Endocarditis—(*a*) Rheumatic, (*b*) Bacterial. T. D. Jones, Boston.—p. 154.

Treatment of Cardiovascular Syphilis. J. M. Faulkner, Boston.—p. 159.

Treatment of Continued Arterial Hypertension and Some of Its Late Effects. R. S. Palmer, Boston.—p. 164.

Military Surgeon, Washington, D. C.

69: 259-378 (Sept.) 1931

Recent Contribution to War Planning: Army Medical Bulletin No. 24. H. C. Gibner.—p. 259.

Recent Advances in Our Knowledge of Dengue Fever. J. S. Simmons. —p. 266.

Preoperative and Postoperative Treatment in Surgery of Stomach. J. A. Bethea.—p. 287.

Dietetic Economics and Administration in Military Hospital. E. McDavid. —p. 294.

New Uses of Sulphur in Medicine. F. J. Vokoun.—p. 304.

Swimming Pools, Simple and Satisfactory Treatment. E. L. Ruffner. —p. 306.

Treatment in Aborted Cases of Acute Gonorrhea. W. J. Manning.—p. 309.

Institution of Definitive Treatment in Tuberculous Filipino Soldier. L. R. Poust.—p. 312.

Missouri State M. Assn. Journal, St. Louis

28: 407-462 (Sept.) 1931

Acute Intestinal Obstruction. A. Ochsner, New Orleans.—p. 407.

Diagnosis and Management of Injuries to Chest. O. B. Zeinert, St. Louis.—p. 414.

Diagnosis and Management of Injuries to Abdomen. R. F. Hyland, St. Louis.—p. 417.

Some Facts in Regard to Surgical Shock. G. S. Foster, Manchester, N. H.—p. 424.

Tuberculosis of Joints: Conservative Plan of Treatment with Presentation of Patients. C. W. Mercer, Kansas City.—p. 427.

Search for Tuberculosis in School Children: Importance to the Child, to the Parent and to the Community. H. H. Bell, St. Louis.—p. 429.

Oklahoma State Medical Assn. Journal, Muskogee

24: 289-316 (Sept.) 1931

Poisoning from Natural Gas and Its Combustion Products. W. B. Newell, Enid.—p. 289.

Acute and Chronic Antrum Problems. W. Mithoefer, Cincinnati.—p. 292.

Eye Complications Following Head Injuries. C. H. Haralson, Tulsa. —p. 296.

Ocular Symptoms and Complications of Diabetes Mellitus. A. W. McAlester III, Kansas City, Mo.—p. 299.

Ionization. H. F. Vandever, Enid.—p. 302.

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Case Reports on Intranasal Operation on Lacrimal Sac. F. R. Vieregg, Clinton.—p. 306.

Unusual Foreign Body in Lung (Pecan Chip): Case. A. H. Davis, Tulsa.—p. 309.

Philippine Journal of Science, Manila

46: 1-158 (Sept.) 1931

Philippine Pine-Needle Oil from Pinus Insularis (Endlicher). Irene de Santos, A. P. West and P. D. Esguerra, Manila.—p. 1.

New or Little Known Tipulidae from Philippines (Diptera): X. C. P. Alexander, Amherst, Mass.—p. 9.

Origin of Irritating Substance in Mosquito Bite. C. Manalang, Manila. —p. 39.

Malaria *Transmission in* Philippines: III. Density and Infective Density of Anopheles Funestus Giles. C. Manalang, Manila.—p. 47.

Fresh-Water Sponges of Philippine Islands. N. G. Gee, Peiping, China. —p. 61.

Plankton Diatoms from Vladivostok Bay. B. W. Skvortzow, Harbin, China.—p. 77.

Mycetozoa from North Manchuria, China. B. W. Skvortzow, Harbin, China.—p. 85.

Pelagic Diatoms of Korean Strait of Sea of Japan. B. W. Skvortzow, Harbin, China.—p. 95.

Histamine Test as Aid in Diagnosis of Early Leprosy. J. Rodriguez and F. C. Plantilla, Cebu, Cebu.—p. 123.

The Fly Eutrixopsis Javana Townsend (Diptera, Tachinidae), a Parasite of the Beetle Leucopholis Irrorata in Occidental Negroes, Philippine Islands. A. W. Lopez.—p. 129.

Composition of Philippine Kapok-Seed Oil. A. O. Cruz and A. P. West, Manila.—p. 131.

Skeleton of Timarau. M. D. Sumulong, Los Bañnos, Laguna.—p. 141.

Physical Therapeutics, New York

49: 325-364 (Sept.) 1931

An Appreciation of the Life and Work of Dr. William Benham Snow. W. L. Clark, Philadelphia.—p. 330.

Fever Produced by Diathermy: Its Value in Multiple Sclerosis and Other Chronic Diseases. W. H. Schmidt and B. P. Weiss, Philadelphia.—p. 336.

Porto Rico J. Pub. Health. & Trop. Med., San Juan

***7:** 1-115 (Sept.) 1931*

Case Report on Twelve Auchincloss or Modified Auchincloss Operations for Filariasis. J. del Toro, J. A. Pons, R. Rodriguez Molina, Porto Rico.—p. 3.

Case of Hypoplastic Anemia, Pernicious Type, in Course of Sprue, with Frequently Repeated Hematologic Examinations. B. K. Ashford, Porto Rico.—p. 11.

Skin Reactions in Persons Infected with Schistosoma Mansoni. W. H. Taliaferro and Lucy G. Taliaferro, Chicago.—p. 23.

Hypersensitiveness to Hookworm Proteins in Porto Rico. J. E. Stumberg and R. Rodriguez-Molina, Porto Rico.—p. 37.

Intestinal Parasiticides. W. A. Hoffman, Porto Rico.—p. 51.

II. Wassermann Reaction in Leprosy. P. Morales-Otero, Porto Rico. —p. 69.

Public Health Reports, Washington, D. C.

46: 2161-2221 (Sept. 11) 1931

Cooperative Campaign for Eradication of Plague in Peru. J. D. Long. —p. 2161.

Occurrence of a Colony of Tick Parasite Hunterellus Hookeri Howard in West Africa. C. B. Philip.—p. 2168.

46: 2223-2289 (Sept. 18) 1931

*Note on History of Pellagra in United States. G. A. Wheeler.—p. 2223.

Sleeping Car Parking and Sanitation at a Large Convention. G. H. Ferguson.—p. 2229.

Catalytic Action of Copper in Oxidation of Crystalline Glutathione. C. Voegtlin, J. M. Johnson and S. M. Rosenthal.—p. 2234.

Pellagra in United States.—According to Wheeler, it is a question whether the apparent epidemic nature of pellagra has not been overestimated, to the hindrance of some of the earlier investigations undertaken to clear up its etiology. Such prerecognition information as has been brought together offers meager support to the view, perhaps too commonly held, that pellagra made a sudden appearance in the South and quickly assumed epidemic proportions analogous to that of an infectious condition. In view of its undoubted endemic existence prior to that time, and with no reliable means of measuring its incidence before or even since, the generally accepted basic requirements for the recognition of an epidemic are not entirely applicable. However, several observers have been able to see in this situation what they regard as evidence not only of a sudden and explosive appearance but, in a few instances, of a definite radial spread and, apparently on these grounds alone, have held on to the view of infectious origin.

Southern Medical Journal, Birmingham, Ala.

24: 741-836 (Sept.) 1931

Pathologic Conditions Arising in Duplication of Kidney Pelvis and Ureter: Twelve Cases. A. J. Crowell, R. Thompson, B. Squires and B. M. Palmer, Charlotte, N. C.—p. 741.

Fractures in Elbow. W. B. Carrell, Dallas, Texas.—p. 749.

Diverticula of Duodenum. J. T. McKinney, Roanoke, Va.—p. 753.

Foreign Bodies in Food and Air Passages. M. Equen, Atlanta, Ga.—p. 757.

Congenital Tracheo-Esophageal Fistula: Case. V. K. Hart, Charlotte, N. C.—p. 762.

Primary Tuberculosis of Spleen, with Report of Case Simulating Banti's Disease. G. Bunch, Columbia, S. C.—p. 764.

Allergic Manifestations in Children Based on Study of Four Hundred and Eighty-Two Cases. R. M. Balyeat, Oklahoma City.—p. 769.

Secondary Gastric Disturbances Occurring in Pulmonary Tuberculosis. J. Friedenwald and T. H. Morrison, Baltimore.—p. 774.

Modern Methods in Treatment of Pulmonary Tuberculosis. O. O. Miller, Louisville, Ky.—p. 781.

Diagnosis and Treatment of Empyema in Children. B. C. Willis, Rocky Mount, N. C.—p. 785.

Treatment of Ringworm of Scalp with Thallium Acetate. R. L. Kelly, Louisville, Ky.—p. 790.

Changing Behavior of the Maladjusted Child. W. L. Nelson, St. Louis. —p. 793.

General Pathologist and Brain Tumor Problem. C. Phillips, Richmond, Va.—p. 799.

Training, of County Health Department Personnel. J. H. Janney Indianola, Miss.—p. 802.

Why Terminal Cancer? S. S. Marchbanks, Chattanooga, Tenn.—p. 806.

Advantages of a Hospital Association to a Railway Company and Its Employees. R. J. Wilkinson, Huntington, West Va.—p. 811.

Our Midwife Problems. W. E. Levy, New Orleans.—p. 815.

Aschheim-Zondek Test (Friedman's Modification) as Aid in Differentiating Early Pregnancy from Other Pelvic Conditions. B. T. Beasley, Atlanta, Ga.—p. 821.

Congenital Absence of Anal Opening. R. B. Miller, Goldsboro, N. C. —p. 822.

The Didactic Lecture. H. M. Winans, Dallas, Texas.—p. 823.

The Teaching of Therapeutics. J. S. McLester, Birmingham.—p. 825.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

28: 177-262 (July-Sept.) 1931

Neurosis in Childhood. I. M. Allen.—p. 177.
On Incidence of Rheumatic Fever. F. Bach.—p. 198.
Thrombophlebitis Migrans Complicating Scarlet Fever. J. B. Ellison.—p. 207.

British Journal of Urology, London

3: 245-352 (Sept.) 1931

On Torsion of Appendages of Testis and Epididymis. V. W. Dix.—p. 245.
Tuberculous Infection of Adenomatous Prostate. F. S. Patch and G. S. Foulds.—p. 269.
Relation Between Reaction and Bacteria of Urine. L. Sas and E. Szold.—p. 281.
Treatment of Spasm of Ureter and of Ureteral Stone by Ammi Visnaga. K. Samaan.—p. 294.

British Medical Journal, London

2: 519-554 (Sept. 19) 1931

Observations on Cerebral Hemorrhage Due to Causes Other Than Arteriosclerosis. J. Collier.—p. 519.
*Acute Tonsillitis and Some of Its Sequelae: Epidemiologic and Bacteriologic Observations. J. A. Glover and F. Griffith.—p. 521.
Work of a Child Guidance Clinic. B. Hart.—p. 528.
*The Diabetic Acute Abdomen: Typical Case. R. D. Larwence, C. G. Millman and F. E. Pilkington.—p. 530.
Electrical Treatment of Neuritis and Writers' Cramp. W. B. Jones.—p. 531.

Acute Tonsillitis.—Glover and Griffith believe that the following tentative suggestions are justified in view of all the available evidence: 1. Epidemic tonsillitis is one of the most common causes of invalidity in boarding schools and is due to infection with hemolytic streptococci of the Streptococcus pyogenes group. 2. Infection of the throat with hemolytic streptococci produces varying clinical pictures in different persons. These include: first, a symptomless infection, or healthy carrier state; secondly, tonsillitis; thirdly, febricula, feverish catarrh or pharyngitis, without noticeable sore throat; fourthly, scarlet fever. Any of the latter three conditions may be followed by otitis media or by acute rheumatism. 3. Many serologic types of hemolytic streptococci may cause scarlet fever, but certain types, the four "chief" types, predominate. Types 1, 2, 3 and 4 are together responsible for 70 per cent of the cases of scarlet fever admitted to fever hospitals in England, the remaining 30 per cent being caused by strains forming a group of heterogeneous types. 4. Epidemic tonsillitis without rash is generally attributable to strains belonging to the heterogeneous group. These strains cause scarlatina when their toxigenic powers are sufficiently high to overcome the antitoxic immunity of the person attacked. 5. Observations made on two outbreaks of tonsillitis (only one of which has been described) attended with severe complications but without typical scarlatinal rashes suggest that the two chief types concerned, types 1 and 2, may not invariably be of high toxigenicity. 6. In any epidemic of scarlet fever, cases of tonsillitis and mild pharyngitis occur side by side with the cases of scarlet fever, and, if bacteriologic examination is made, numbers of healthy carriers will also be detected, all yielding the same type of hemolytic streptococcus as the scarlatinal cases. These unsuspected sources of infection constitute one of the most difficult problems in the control of scarlet fever. 7. Epidemics of tonsillitis in schools are generally associated with a high carrier rate of hemolytic streptococci. 8. Epidemics of measles and influenza, even in good hygienic conditions, increase the spread of hemolytic streptococci, which are the chief cause of serious complications in these diseases. 9. Often, however, epidemics of tonsillitis and high carrier rates of hemolytic streptococci are signs of the existence of environmental conditions which favor a rapid and easy transmission of infection. Chief of such conditions are too great proximity of beds, deficient floor area and deficient ventilation in dormitories. 10. Adequate spacing and ventilation of dormitories and classrooms, and proper intervals between beds in dormitories and school sanatoriums, are important factors in the prevention of the spread of infection.

Diabetic Acute Condition of Abdomen.—Lawrence and his associates report an extreme case of the acute abdominal condition occasionally associated with severe diabetic ketosis. Intense abdominal pain, tenderness, and rigidity, and a high leukocytosis were present, simulating an acute abdominal condition. All the acute symptoms disappeared within twelve hours of adequate insulin treatment.

Indian Medical Gazette, Calcutta

66: 483-542 (Sept.) 1931

Note on Formation of Leprous Nodules in Human Skin. J. M. Henderson.—p. 483.
Investigation of After-Histories of Sanatorium Patients in India. C. Frimödt-Moller.—p. 484.
Five Cases of Juvenile Megacolon. E. H. Vere Hodge.—p. 488.
Pellagra in Deccan: Report on Forty Cases Occurring Among Lepers at Leprosy Hospital, Dichpali, Hyderabad, Deccan. J. Lowe.—p. 491.
Serum-Formalin Proportion in Aldehyde Test for Kala-Azar. C. R. Das Gupta.—p. 500.

Lancet, London

2: 617-668 (Sept. 19) 1931

Precancerous Lesions of Alimentary Tract. M. J. Stewart.—p. 617.
Outbreak of Rabies in Trinidad, Without History of Bites, and With Symptoms of Acute Ascending Myelitis. E. W. Hurst and J. L. Pawan.—p. 622.
*Should High Blood Pressure be Reduced? I. Harris and C. L. G. Pratt.—p. 629.
Iodine Powder in Treatment of Chronic Otorrhea. N. Asherson.—p. 630.

Should High Blood Pressure Be Reduced?—Harris and Pratt describe tests on twenty-two patients in which they noted that the water-excretion function was definitely depressed as a result of administering pressure-reducing drugs. There was retention of urea, nonprotein nitrogen, phosphates and chlorides in the blood as a result of pressure-reducing drugs, while the alkali reserve was generally lowered. The cardiac function was definitely impaired as the result of the treatment. On the basis of their observations the authors conclude that it is not desirable to administer pressure-reducing drugs as routine treatment in cases of hypertension.

2: 669-722 (Sept. 26) 1931

*Precancerous Lesions of Alimentary Tract. M. J. Stewart.—p. 669.
Nonparasitic Cysts of Liver: Report of Two Cases Together with Case of Cyst of Ligamentum Teres Hepatis. C. P. G. Wakeley and D. J. MacMyn.—p. 675.
Operative Treatment of Hydrocele. A. W. Mooro.—p. 680.
Epithelioma of Esophagus in Association with Achalasia of Cardia. G. Rake.—p. 682.

Precancerous Lesions of Alimentary Tract.—According to Stewart, the precancerous conditions of the alimentary tract are both numerous and varied, though not all of equal importance. In the mouth, leukoplakia of the tongue stands out as the chief precancerous lesion, being present in at least one third of cases of cancer of that organ. It is interesting to note that, whereas about two thirds of the cases of leukoplakia linguae are syphilitic in origin, leukoplakia vulvae, also an important precursor of cancer, bears no relationship to syphilis but depends in part at least on the cessation of ovarian function. In the stomach, chronic gastric ulcer is probably responsible for about one sixth of the cases of cancer, while simple adenomatous polypi account for another 4 or 5 per cent. The connection between chronic gastritis and cancer is not yet clearly established, although there is a certain amount of evidence, both clinical and pathologic, pointing in this direction. Following Hurst, the anatomic distribution of carcinoma of the stomach would suggest that mechanical friction is an important factor in the etiology of this disease. In the liver, multilobular (portal) cirrhosis is the usual precursor of primary cancer. Nine out of ten liver-cell carcinomas originate in cirrrhotic organs, often with the formation of multiple adenomas as an intermediate phase, while the less common bile duct cancer is associated with cirrhosis in about half the cases. In hemochromatosis with its accompanying cirrrhosis the chances of carcinoma arising in the liver are at least as high as in the ordinary multilobular type. The association between cholelithiasis, cholecystitis, and cancer of the gallbladder and larger bile ducts is fully established. Figures are given to show that it is the multiple faceted type of stone which is responsible and not the solitary cholesterol stone, which does not occur with significantly greater frequency in cases of biliary tract cancer than in the control series. The chief precancerous lesion of the large intestine is the benign adenomatous polypus, and, as a subvariety, the rare condition known as familial polyposis. There is no evidence that either diverticulosis or diverticulitis is etiologically related to cancer, but it is shown that the carcinoid tumor of the appendix arises with greater frequency in the fibrosed and (partially) obliterated organ. There is but scanty evidence in man of a connection between animal parasites and cancer of the alimentary tract. Fibiger's work on spiroptera cancer of the stomach in rats and the investigations of Bullock and Curtis on cysticercus sarcoma of the liver in the same animal have no direct applicability to the human subject. A number of examples of primary carcinoma of the liver and bile passages occurring in association with infestation by flukes have been reported, mainly from Russia and the Far East, and an *a priori* case may be regarded as having been established. Schistosomiasis, certainly the chief cause of the high incidence of carcinoma of the bladder in Egypt, is etiologically unrelated to either carcinoma of the liver or carcinoma of the large intestine. A general conclusion which may reasonably be drawn from these varied observations is the desirability of stressing the importance of local factors in the etiology of malignant disease. At present this constitutes much the most fruitful field of inquiry and the most hopeful line of attack in cancer prophylaxis. So far as the alimentary tract is concerned, the opportunities for the prevention and treatment of precancerous states are fewer than in the case of external cancer, in which the etiologic relationship with various sources of irritation is now well established, but even here something can be done. The study of the racial and geographic incidence of malignant disease, not in general but in respect of particular sites, is still in its infancy. From the little that has already been done it is clear that much may be learned from a detailed study of the environmental factors, climatic, dietetic, habitudinal, parasitic, of the races of mankind. For this purpose accurate statistical information on a large scale, as yet unavailable, is an essential prerequisite. The author concludes by emphasizing the extraordinary width and diversity of the field of cancer research, including as it does the nature, causation, prevention and treatment of the numerous and varied precancerous states of which he has spoken, and many more besides. No one who takes up cancer research should feel that he is committed to a narrow specialty: it is a field of almost illimitable scope, and incidentally an excellent training ground for both pathologist and clinician.

Medical Journal of Australia, Sydney

2: 221-250 (Aug. 22) 1931

Lipiodol in Neurologic Diagnosis. J. F. Mackeddie.—p. 221.
New Method of Osteoplastic Restoration of Skull. P. Pickerill.—p. 228.
Etiology of Convulsions. W. Evans.—p. 229.
Convulsions in Children Under Five Years. E. H. M. Stephen.—p. 231.
Study of Renal Function Following Toxemic Pregnancy. Vera I. Krieger and J. S. Green.—p. 234.
Arachnodactly Associated with Muscular Hypotonia. W. W. Ingram and K. Inglis.—p. 238.

2: 251-282 (Aug. 29) 1931

Bancroft Memorial Lecture: Changing Point of View. F. W. Jones.—p. 251.

Japanese J. Obstetrics & Gynecology, Kyoto

14: 153-266 (June) 1931

Relation Between Menstrual Periodicity and Duration of Pregnancy: I. Menstrual Periodicity of Japanese Women. J. Nakagawa.—p. 154.
Id.: II. Menstrual Periodicity and Duration of Pregnancy. J. Nakagawa.—p. 164.
Birth Injuries in the New-Born: VII. Birth Injuries in Cases of Eclamptic Labor. H. Yagi.—p. 183.
Id.: VIII. Relation Between Asphyxia Neonatorum and Intracranial Hemorrhage. Treatment and Prophylaxis of Birth Traumas. H. Yagi.—p. 191.
An Interesting Instance of Chorio-Epithelioma Malignum Diagnosed by Trophoblast Reaction (Z. A. Reaction of Anterior Pituitary Lobe). T. Shirai.—p. 196.
Experimental Investigation of Effect of Roentgen Rays on Vegetative Nerve: I. General Action of Roentgen Rays, Especially the Relation with Blood Pressure. S. Suzuki.—p. 207.
Id.: Pharmacologic Investigation of Effect of Irradiation on Inferior Mesenteric Ganglion on Uterine Motion. S. Suzuki.—p. 214.
Biologic Study of Radiosensibility: I. Effect of Roentgen Rays on Immature Tissues of Plant. J. Nakagawa.—p. 218.
Pharmacologic Investigation of Blood Vessels of Human Placenta: I. On Existence of Vascular Nerve in Blood Vessels of Human Placenta. K. Ueda.—p. 225.
Case of Hemorrhagic Breasts Complicating Pregnancy. H. Kondo.—p. 233.
On Cause of Hydrosalpinx. T. Kumamoto.—p. 236.

Annales de l'Institut Pasteur, Paris

47: 117-219 (Aug.) 1931

Pathogenic Properties of B C G. A. Boquet.—p. 117.
*Rapid Demonstration of Tuberculous Ultravirus. F. van Deinse.—p. 135.
Antituberculous Vaccination in Algeria. E. Sergent and H. Ducros-Rougebief.—p. 144.
*Serodiagnosis in Leprosy: Agglutinosedimentation of Formolized Sheep Cells. M. C. Rubino.—p. 147.
*Ulcerative Colitis. R. Buttiaux and A. Sévin.—p. 173.

Rapid Demonstration of Tuberculous Ultravirus.—Van Deinse inoculated guinea-pigs intraperitoneally with filtrate of cultures of bovine tubercle bacilli and killed the animals after two to four days. The development of the acid-resistant bacillus from the virus is particularly favored by the presence of pus in the peritoneum. To bring about the formation of pus, calcium phosphate was injected one or two days before the injection of the filtrate. This procedure permits a differential diagnosis between the ultravirus and the bacillary form of the virus in pathologic processes. The ultravirus gives rise to the characteristic masses of the acid-fast bacilli during the first three days after the inoculation; these masses disappear toward the eighth day and the virulent scattered bacilli, never in masses, appear in the peritoneal pus toward the tenth day.

Serodiagnosis in Leprosy.—Rubino finds in the serums of lepers a specific substance which combines with formaldehyde treated sheep cells and causes rapid agglutination and sedimentation. Certain normal or pathologic human serums also possess the property of agglutination and sedimentation of sheep cells. These hetero-agglutinins are attached indifferently to natural or formaldehyde treated sheep cells. This property can be utilized to remove the hetero-agglutinins by fixation with the natural sheep cells before the serum-formaldehyde treated sheep cell test. The test should always be made in the presence of both untreated and treated sheep cells. The reaction should be considered positive when sedimentation of treated cells takes place in less than an hour and is more marked than with the natural untreated sheep cells. It is negative when there is no agglutinosedimentation or when the sedimentation is about equal in the tests in which formaldehyde treated and untreated sheep cells are used. In thirty-six cases of various forms of leprosy, the reaction was positive twenty-seven times, negative seven times and doubtful twice. Three hundred and four serums from persons with various other diseases gave negative reactions with the exception of one from a subject who had made many trips to the colonies and was found to have two large ulnar nerves with tingling in the fingers innervated by them. Later examination proved that the patient harbored a leprous infection.

Ulcerative Colitis.—Buttiaux and Sévin, after many animal experiments, confirm their belief that ulcerative colitis is an infectious process and is of lymphatic origin. Intestinal parasites pave the way for subsequent microbic infection. Following Bargen's technic they isolated, in addition to Bargen's diplococcus, another possibly related diplococcus. Animal experiments and intradermal skin tests led the authors to believe that both strains were specific. Both types of diplococci reproduced the disease in rabbits. However, other organisms may be associated or symbiotic forms. Among the other forms of ulcerative colitis, some are results of organisms, once agents in a general previous infection, that became localized in the colon after a period of latency. Such are the colitis conditions following old Hiss and Shiga dysentery, Friedländer rhinitis, and old paratyphoid Salmonella infections. Bacillus coli or the enterococcus, both common to the intestinal flora, under lowered body resistance or multiple digestive disturbances, may assume virulence and also cause colitis.

Archives des Maladies de l'Appareil Digestif, etc., Paris

21: 777-896 (July) 1931

*Acetylcholine and Gastric Secretion: Treatment of Hypochlorhydria and Prognosis of Anachlorhydria. G. Faroy and R. Deron.—p. 777.
Retroperitoneal Parajejunal Hernias. M. G. Brohée.—p. 794.

Acetylcholine and Gastric Secretion: Treatment of Hypochlorhydria and Prognosis of Anachlorhydria.—Faroy and Deron in their efforts to find a substance that would influence the secretion of gastric juice and yet have no harmful sequelae found that acetylcholine was more satisfactory than histamine. They found that carefully standardized and stabilized solutions of acetylcholine did not give better results than solutions of the powder prepared just before injection. The authors could draw no conclusions from the study of specimens of fluid obtained fractionally through the Einhorn tube or from the rhythm of the secretion; the figures varied in the same subject from one test to another and in the same series of tests under diverse influences, such as salivation, secretion due to dilution, conditioned reflex, evacuation or pyloric regurgitation. The authors' experiments led to the following observations: 1. Single intramuscular injections of 0.3 to 0.4 Gm. of acetylcholine after the introduction of the Einhorn tube stimulated only a minimal acid secretion comparable to the secretion caused by the stimulatory action of the tube itself and distinctly inferior to the acidity of the secretion when histamine was injected. Therefore, acetylcholine cannot supplement histamine in testing for the presence of gastric secretion. 2. The authors studied the influence of repeated injections of acetylcholine in series consisting of from twelve to fifteen injections administered to both normal and hypochlorhydric persons. In one case of duodenal ulcer the physiologic action of acetylcholine was similar to that produced by insulin or pancreatic extract. In one instance in which an old gastric ulcer had become latent after gastro-enterostomy, àpropos of a recent hemiplegia from cerebral softening, one treatment of acetylcholine hastened the return of the gastric pains and forced the suspension of treatment. 3. All the hypochlorhydric conditions, even the more accentuated, have been favorably and rapidly influenced by acetylcholine treatment. A single series of injections is sufficient to reestablish a normal secretion in the mild hypochlorhydric conditions. The authors most often give two series, but when the index of acidity is very low and the lesions very old, three or four series were found necessary. 4. Two elements characterize the awakening or increase of the acid secretion, namely, its prolongation and the increase in the degree of acidity. From a functional point of view, the digestive value of the gastric juice depends more on the continuity and the duration than on the intense but fleeting elevation of the hydrochloric acid secreted. The therapeutic test with acetylcholine, like histamine, permits the separation of anachlorhydric conditions into two types. One type is similar to hypochlorhydria; the acid secretion increases progressively and tends to return to normal—this type consists of relatively anachlorhydric or achylic conditions. The other type has no secretory reaction; it consists of the true anachlorhydric or achylic conditions. The therapeutic test with acetylcholine permits a discrimination between true and relatively anachlorhydric conditions. It was found that the histamine-produced hydrochloric acid value was elevated by subsequent injections of acetylcholine. 5. The mechanism through which acetylcholine influences the gastric secretion is not actually known; but it seems that the vasodilator action is not sufficient explanation. Acetylcholine does not act in the same way as histamine, which gives immediate results. Small serial doses of histamine did not give the same results as acetylcholine and large single injections of acetylcholine did not give the instantaneous results produced by single injections of histamine. The authors believe that the constantly favorable results obtained through their series of acetylcholine injections permit them to recommend the doses actually used in their experiments for treatment.

Paris Médical

2: 101-136 (Aug. 8) 1931

Neurosympathetic Physiopathology of Tissues and Cancer Formation. C. Stajano.—p. 125.

*Serotherapy and Vaccinotherapy in Activation of Pulmonary Tuberculosis. P. Lefévre.—p. 129.

Pleural Calcification: Case. C. Gandy and R. Couder.—p. 132.

Serotherapy and Vaccinotherapy in Activation of Pulmonary Tuberculosis.—Lefévre reviews eight complete and three incomplete case histories and mentions 900 other observations which lead him to the following conclusions: Indiscriminate vaccinotherapy and serotherapy should be discouraged. These measures, although of value and justified, should be used with great discrimination. The author finds that pulmonary tuberculosis in case of serotherapy appears as pulmonary congestion and in case of vaccinotherapy, as more or less transient anergy. The physician who administers antitetanus serum as a routine in cases of insignificant abrasions does not do so without risk. Administration of antidiphtheria serum and antityphoid vaccine should only follow a thorough laboratory and physical, including a roentgen, examination. The possibility of awakening latent tuberculosis should be given consideration.

Presse Médicale, Paris

39: 1229-1244 (Aug. 19) 1931

Vegetative and Ulcerative Chronic Pyodermatitis. L. Hudelo and R. Rabut.—p. 1229.

*Life Cycle of Syphilitic Virus: Is Spirochaeta Pallida Virulent? P. Lépine.—p. 1233.

Restoration of Antero-Internal Dislocation of Shoulder. M. Flipo.—p. 1235.

Life Cycle of Syphilitic Virus: Is Spirochaeta Pallida Virulent?—Lépine summarizes the theories of the etiology of syphilis. Lavaditi and Lépine proved that positive reactions as demonstrated by Wassermann and Meinicke tests are independent of the virulence of the organism, state of the infection or immunity of the host. They proved this by animal inoculations with heat-killed spirochetes. According to recent work Spirochaeta pallida in itself is not the causative agent, but instead a visible and nonvirulent stage in the life cycle of an ultravirus and virulent stage. Observation of human patients and many experimental animals lead the author to the following conclusions: Many syphilitic conditions do not harbor the visible spirochete. Animal experiments prove that in the life cycle of the spirochete there is present a first stage, in which only the virulent invisible agent exists; a second stage, in which there are present both spirochetes and the virulent invisible agents; and the third stage, containing a nonvirulent vegetative form resembling the recurrent spirochete or the spirochete of parasyphilis. The invisible agent is an ultravirus.

39: 1245-1260 (Aug. 22) 1931

Classification of Congenital Syphilis of Bone in Infancy. M. Péhu and A. Policard.—p. 1245.

*Pain Syndromes of Peripheral Nerves: Subarachnoid Alcoholization of Posterior Roots. A. M. Dogliotti.—p. 1249.

Lipoid Nephrosis. L. Ramond.—p. 1255.

Pain Syndromes of Peripheral Nerves.—Dogliotti recommends injections of absolute alcohol in amounts of not more than 0.2 to 0.8 cc. The operation is carried out in the same way as a spinal puncture. Injections are made slowly into the cerebrospinal fluid aimed at the posterior roots between their point of emergence from the spinal medulla and their egress from the dura mater. The needle is introduced into the dorsal or lumbar intervertebral space, in accordance with clinical conditions: from the fourth to the ninth dorsal space for pains in the thorax and upper part of the abdomen as well as the upper limbs; the fourth and fifth lumbar spaces for pains in the lumbosacral and perineal regions. To reach the nerve roots of the arm, the shoulders are raised horizontally from 20 to 30 degrees, so that the alcohol can flow toward the first roots of the thorax and the last cervicals. Sensitivity, warmth at first, then hypesthesia and analgesia, appear immediately and reach the maximum in from twenty to thirty minutes. Muscular disturbances (heaviness of limbs, slight hypotonicity of some groups of muscles) either do not appear at all or are slight or transitory. In twenty-four hours the sensitivity is almost back to normal, leaving only zones of slight hypesthesia, particularly hypalgia, of radicular distribution. The action of the alcohol is more marked on the posterior than on the anterior roots. The patient's position makes this possible. Moreover, a very thin arachnoid velum separates the anterior from the posterior roots. Since the author believes that the posterior nerve roots are the important factors, this is highly desirable. Alcohol has no secondary toxic action; it diffuses rapidly and easily and has a much lower specific gravity than cerebrospinal fluid. The author treated forty-five patients. He concludes that benefit can be derived in neuralgia of the sciatic and other peripheral nerves; ganglionic, funicular and radicular pains of various origin; phantom stump pains in amputation; pains due to tabes; many forms of visceral pains not benefited by other treatment, and pains caused by inoperable cancer (prostate, uterus, breast).

Schweizerische Medizinische Wochenschrift, Basel

61: 741-788 (Aug. 8) 1931

Volatile Poisons. H. Zangger.—p. 741.
New Volatile Poisons. H. Zangger.—p. 748.
Avulsion Fracture of Tuberosity of Tibia. O. Winterstein.—p. 761.
Late Results After Operation on Hallux Valgus. E. Schreiber.—p. 763
Invasion of Ascarides into Biliary Tract as Fatal Result of Injury. E. Baumann.—p. 766.
Isolated Fractures of Pisiform Bone. W. Jaeger.—p. 766.
Total Dislocation of Talus. P. Pfaehler.—p. 768.
*Treatment of Sunstroke. Sonderegger.—p. 769.
Influence of Brine Baths on Sequelae of Accidents. O. Hauptli.—p. 770.
*Sunburn: Treatment with Rays of Long Wavelength. F. Bircher.—p. 770.
Somnambulism and Accident. C. Dubois.—p. 771.
Contestable Decision in Lawsuit Regarding Compensation of Invalid. Leipziger.—p. 774.
The Physician's Professional Secrecy. G. Gautschi.—p. 775.

Treatment of Sunstroke.—Sonderegger first differentiates between sunstroke and heat stroke. Sunstroke results from overheating of the head and develops following direct exposure of the head during hot weather, whereas heat stroke is caused by overheating of the entire body and does not necessarily have to be caused by sunlight but may be caused by any other form of heat. The differential diagnosis between the two can usually be based on the anamnesis and on the clinical aspects, but it is also possible that the two conditions concur. In discussing the pathologic anatomy of sunstroke the author states that there is a marked hyperemia of the cerebral meninges, an edema of the cerebral substance and a hydrops meningeae. This intracranial congestion is the result of the direct irradiation of the head, and it explains the manifestations of central excitation and paralysis. That not only the heat rays but also other chemically active rays are responsible for the sunstroke is proved by the greater frequency of sunstroke in the tropics when the sky is cloudy. Since in cases of cerebral pressure manifestations, irrespective of their etiology, good results have been obtained with the intravenous injection of a hypertonic solution of sodium chloride, the author attempted to treat sunstroke in this manner, by injecting 20 cc. of a sterile 20 per cent solution of sodium chloride. He explains the mechanism of this treatment and states that its results were highly favorable. In addition to the injection, other therapeutic measures that have proved helpful should not be neglected. The patient should be given all the water he desires and the significance of perspiration, on account of the cold that is produced by its evaporation, should not be undervalued. In discussing the prophylaxis of sunstroke the author warns against going with uncovered head during the hot season. As the best hat material for protection against sunstroke he considers felt. He states that instead of the cork-lined tropical helmet, double felt hats are now the form of hat most frequently worn in tropical climates.

Sunburn: Treatment with Rays of Long Wavelength.—Recalling that the effects of prolonged exposure to rays of short wavelength, especially to ultraviolet rays, can be counteracted by rays of long wavelength, Bircher treated a patient with severe sunburn by the application of rays of long wavelength. The results were surprisingly favorable.

Giornale di Clinica Medica, Parma

12: 867-952 (Aug. 30) 1931

Clinical and Anatomic Considerations on Hypertrophic Cirrhosis. A. Fontana and R. Reitano.—p. 867.
Some Rare Costal Malformations. A. Casti.—p. 910.
*Initial Phase of Hyperglycemia Due to Ingestion of Dextrose. A. Gasparini.—p. 917.
Oral Treatment in Diabetes. A. Schweitzer.—p. 940.

Initial Phase of Hyperglycemia Due to Ingestion of Dextrose.—Gasparini, studying the manner in which hyperglycemia due to the ingestion of dextrose begins, was able to establish that often hyperglycemia appears early, being manifested after five minutes. But not infrequently he observed an absence of rapid hyperglycemia, the manifestation appearing much later (after twenty minutes). This appears to be observable chiefly in liver patients. Comparing the beginning of hyperglycemia following the ingestion of dextrose with the hyperglycemic reaction due to epinephrine, the author observed that minimal or absent epinephrine hyperglycemia corresponds to the absent early hyperglycemia, and deduced from this fact that the initial phase of the glycemic curve due to ingestion is the result of hepatic glycogenolysis from an enterohepatic sympathetic reflex. He suggests considerations and proofs from which he deduces that the mechanism of the production of such a reflex is analogous to that of epinephrine glycogenolysis.

Rivista di Patologia e Clin. della Tuberculosi, Bologna

5: 617-712 (Aug. 31) 1931

Relations Between Tuberculosis in Children and Tuberculosis in Adults. D. Pacchioni.—p. 617.
Filtrable Forms of Tubercle Bacilli. A. Cuturi and C. Lanza.—p. 627.
*Cutaneous Atrophic Striation in Pulmonary Tuberculosis. C. Alessandri.—p. 635.
Relative Value of Manometric Indications in Certain Cases of Pneumothorax. M. Mazzetti.—p. 653.
Acute Clinical Beginning of Pulmonary Tuberculosis in the Adult. G. Costantini and C. Soglia.—p. 662.
*Primary Hilus Localization of Pulmonary Tuberculosis. L. Sagona.—p. 670.

Cutaneous Atrophic Striation in Pulmonary Tuberculosis.—Alessandri reports his observations in fourteen cases of cutaneous atrophic striation in patients with pulmonary tuberculosis and in patients with pulmonary disorders due to other causes. He discusses the pathogenesis of the symptom and calls attention to the many different theories in regard to the mechanism of the manifestations. The author inclines to the theory that for the determination of cutaneous atrophic striation one must predicate a constitutional factor, a local and general infective factor (associated with the micro-organism or with its toxic products), and an intense stimulus, greater than normal, where the atrophic striation appears.

Primary Hilus Localization of Pulmonary Tuberculosis.—Sagona points out that experimentally the penetration of tubercle bacilli in small doses or as ultravirus has a special predilection for the lymph nodes, in which a defense action is easily demonstrable. Such observations of an experimental nature may be verified in the clinic in contagion from small numbers of tubercle bacilli in early childhood. Tuberculous infections of endothoracic or extrathoracic origin show frequent pulmonary localization in the lymph nodes and particularly in the hilus, which fact makes it necessary to subject the conception of the primary pulmonary focus to a radical revision. The semeiotic inquiry does not throw any light on the subject although the roentgenologic examination, and particularly the roentgenogram, is in accord with these views, which explain better the beginning of tuberculous contagion in childhood and the mechanism of endogenic and exogenic reinfection in the adult.

Revista Española de Tuberculosis, Madrid

2: 131-270 (June) 1931. Partial Index

*Experiments on Surgical Treatment of Pulmonary Tuberculosis by Means of Thoracic Sympathectomy. C. Alvarez.—p. 241.
*Mycosis and Pulmonary Tuberculosis. A. Barbero.—p. 253.

Thoracic Sympathectomy in Pulmonary Tuberculosis.—Alvarez believes that thoracic sympathectomy, including the second, third and fourth intercostal thoracic ganglions, by depriving the lungs of the sympathetic nerve supply, will provoke a condition of constant vasodilatation in the lung, with resulting hyperemia, favorable for the healing of pulmonary tuberculosis. Simple resection of the second, third and fourth intercostal nerves gives only temporary results since the nervous connections are sooner or later restored. The opinion that there are sympathetic cells in the walls of the vessels, to reassume the functions of the sympathetic nerves, is erroneous. The operation is compatible with life. However, the author has not made experiments and suggests that his colleagues perform the operation on monkeys. The survival of the animals in good condition will indicate the adaptability of the operation for human beings. In the application of the method to man, one must be careful, having in mind the possible danger of provoking a condition of massive vasodilatation. An increased rate of sedimentation of the erythrocytes contraindicates the operation. The technic is easy, as performed in the cadaver. The author describes in detail the technic in its possible application to human beings.

Mycosis Complicating Pulmonary Tuberculosis.—To ascertain the incidence of mycosis as a complication of pulmonary tuberculosis, Barbero made 259 cultures with sputum and 77 cultures with saliva from 54 patients with pulmonary tuberculosis. In 43 per cent of the sputum samples and in 21 per cent of the saliva samples the results were positive for fungi. The author also carried on clinical observations in two patients with the complication, both of whom were observed for a long time. The reports of the cases are given in detail. From the sputum of the patients the black Scopulariopsis organism was isolated. The intravenous injection of the organism into a guinea-pig killed the animal in seven days. The subcutaneous injection of the same organism caused the death of the guinea-pig in twelve days. In a severe case of pulmonary tuberculosis the brown Scopulariopsis organism was isolated from the sputum of the patient. The intraperitoneal injection of the organism killed the guinea-pig in fourteen days. The only lesions observed in the postmortem examination of the animals (both in those which received the injection with the black Scopulariopsis and in those which received the injection with the brown Scopulariopsis) were paleness of the spleen and marked multiple infarction of the lymph nodes. The author concludes that, in the respiratory tree of patients with pulmonary tuberculosis, fungi are frequently present; from the sputum of the patients, fungi can frequently be isolated. From the saliva of the same patients other yeastlike fungi can be isolated, although they are not so numerous as those found in the sputum. The fungi in the respiratory tract play the most important rôle in the chronicity of the processes of pulmonary tuberculosis, both by providing a mechanical irritative factor and by having a toxic action on the patient's general condition.

Deutsche medizinische Wochenschrift, Berlin

57: 1443-1486 (Aug. 21) 1931

Hemorrhage Following Expulsion of Placenta. H. Küstner.—p. 1443.
*Total Irradiation with Roentgen Rays. W. Teschendorf.—p. 1445.
Treatment of Tuberculous Diseases of Eye and of Its Surroundings by Means of Roentgen and Radium Rays. Hoffmann.—p. 1448.
Blood Transfusion with Merke's Apparatus. W. Flessa.—p. 1451.
Antirachitic Action of Cod Liver Oil in Form of Granulated Powder. G. Mansfeld and Z. Horn.—p. 1452.
Usability of Sodium Glycocholate for Bringing About Abundant Growth of Typhoid and Paratyphoid Bacilli in Blood Coagulum. O. Mündel.—p. 1454.
*Treatment of Migraine by Means of Hormone Preparations of Anterior Lobe of Hypophysis. Irma Klausner-Cronheim.—p. 1455.
Large Doses of Amidopyrine in Treatment of Postinfectious Increase in Temperature. Unverricht.—p. 1456.

Total Irradiation with Roentgen Rays.—Teschendorf stresses that only small doses can be applied in total irradiations. From 0.5 to 2 per cent of the unit skin dose is applied to the whole body from a distance of about 2 meters. Irradiation of the entire body with roentgen rays is helpful in diseases of the blood, particularly in leukemia. It produces more uniform and permanent improvements than irradiation of the spleen and it is helpful even in those cases in which roentgen therapy of the spleen has failed. A complete cure of leukemia has not been obtained by total irradiation but it does prolong the life of patients. In aleukemia, total irradiation has likewise been found helpful; but in this condition special precaution is necessary and the irradiations should be of short duration. In lymphogranuloma, total irradiation proved of no especial value. In skin diseases it is still difficult to formulate definitely the indications for total irradiation with roentgen rays. It was employed in psoriasis and in eczema, especially in patients with extensive lesions, in whom the field method proved inadequate, and also in patients that were refractory to all other forms of treatment. Especial attention is called to the fact that in women the total irradiation may influence the menses. In a woman, aged 43, the menses returned temporarily after having ceased for two years. In another woman with menorrhagia the menstruation was normal after the total irradiation. Several other women stated that menstruation set in several days too early. In order to eliminate the influence on menstruation the author later covered the ovarian region with a lead plate, but he is as yet not able to state whether it is effective. On the other hand, the observations about the influence on the menstruation may be of some significance for gynecology.

Treatment of Migraine by Means of Hormone Preparations of Anterior Lobe of Hypophysis.—On the basis of the observation that women suffering from frequent attacks of migraine often are entirely free from them during pregnancy and lactation, Klausner-Cronheim reasoned that perhaps the large quantities of the hormone of the anterior hypophysis that are found in the blood stream during pregnancy prevent the attacks. Accordingly she attempted to counteract migraine by oral administration of the hormone of the anterior lobe of the hypophysis. The patients, ten in number, all of whom had strenuous mental work, were given three times daily one tablet (450 mouse units) of the hormonal preparation. In three cases there was no effect whatever, but in seven cases the effects, as far as the attacks of migraine were concerned, were favorable; either the attacks ceased completely or were so much less severe and less frequent that the patients felt considerably relieved. However, in some of the patients menstrual disturbances set in, the menstruation commencing from four to seven days too early and also being more profuse; but the patients felt that to be relieved from the attacks of migraine more than compensated for the menstrual disturbance. In the conclusion the author expresses the opinion that if in seven out of ten patients the migraine attacks could be counteracted, her mode of reasoning must have been correct. The complete failure of the treatment in the other three cases is probably due to the fact that, although the symptoms were the same, the nature and etiology of these cases of migraine were different, and it might be possible that by the hormonal treatment the various forms of migraine could be differentiated. But even in those cases of migraine which apparently are due to a deficiency in hypophyseal hormone, hormone preparations should be administered with caution, so as to prevent unfavorable effects on the ovarian functioning; this applies especially to young girls.

Medizinische Klinik, Berlin

27: 1201-1234 (Aug. 24) 1931

*Roentgen Therapy in Puerperal Mastitis. J. Granzow.—p. 1201.
*Cerebral Symptoms in Chronic Arthritis. G. Katz.—p. 1204.
Application of Acetarsone in Pregnant Women and in the New-Born. E. Klaften.—p. 1208.
Life-Endangering Hemorrhage into Abdominal Cavity in Myoma. K. Abel.—p. 1212.
Self Experiments on Flow of Bile Following Administration of Magnesium Sulphate and of Fresh, Bottled and Artificial Karlsbad Water. M. Stern.—p. 1212.
*Typical Whooping Cough Checked by Infection with Measles. J. Tuscherer.—p. 1214.
Positive Seminal Vesicle Reaction Produced with Urine of Nonpregnant Women. E. J. Kraus.—p. 1215.

Roentgen Therapy in Puerperal Mastitis.—On the basis of his experiences with roentgen irradiation in twenty-one cases of puerperal mastitis, in nineteen of which it was successful, Granzow concludes that the early application of weak doses of roentgen rays is of great therapeutic value and does not cause injurious effects. As the optimal dose he recommends 10 per cent of the unit skin dose, which is estimated at 590 r. The quality of the applied rays is designated as hard, the number of kilovolts being 180 and the filter consisting of 0.5 mm. of copper and 0.5 mm. of aluminum. The size of the field generally is 8 by 10 or 10 by 15 cm. The cone of rays should strike not only the diseased part but also the surrounding area to an extent of from 3 to 4 cm. Although the results that have been obtained so far are satisfactory, in the future the author intends to try softer rays, which are more suitable for surface irradiation than the hard rays with their greater penetrating power.

Cerebral Symptoms in Chronic Arthritis.—In the first part of his report, Katz reproduces several photographs of patients with chronic arthritis and calls attention to the fact that in some persons with chronic arthritis the physiognomy is similar to that which is often noted in patients with chronic encephalitis. The stony masklike expression is the main characteristic. In some cases he also noted other manifestations that sometimes occur in chronic encephalitis, such as profuse salivation, hyperhidrosis, abnormal pigmentation and changes in the nails. In arthritis these symptoms are often ascribed to incretory disorders; however, it is also possible that they are the result of changes in sympathetic centers of the brain. The psyche of this group of patients with severe chronic arthritis also shows certain peculiarities. There is an emotionless euphoria, which expresses itself in great patience, an unchangeable friendliness and a certain stiffness. There also is indecision, a lack of initiative and emotion, and some patients appear depressed. The speech of the arthritic patients sounds somewhat monotonous and is usually slow, but disturbances in the intelligence are not present. A certain similarity between the psychic aspects of these patients with arthritis and of patients with chronic encephalitis cannot be denied. However, the author does not wish to create the impression that these arthritic patients belong to the encephalitic group but only asks whether certain forms of arthritis may not be of neurocentral origin. He thinks that the striking symmetry of the affected joints indicates a neurocentral influence. In discussing the frequency of the cerebral symptoms in patients with chronic arthritis, he states that among twenty-six patients there were five in whom they were especially marked; twelve others showed the one or the other sign, and in the other nine there were no signs that indicated cerebral involvement.

Typical Whooping Cough Checked by Infection with Measles.—Tuscherer observed in two children, who had whooping cough during a whooping cough epidemic, that infection with measles checked the whooping cough. He does not try to explain this phenomenon but points out that it is not an impossibility that one disease is checked and even cured by another and cites as an example malariotherapy in dementia paralytica. After calling attention to the fact that formerly smallpox vaccination during whooping cough was recommended in the hope that the protracted course could thus be favorably influenced, he advises that measles convalescent serum should now be tried.

Wiener Klinische Wochenschrift, Vienna

44: 1069-1096 (Aug. 21) 1931

Observations on Cerebrospinal Fluid and Therapy of Syphilis. B. Dattner.—p. 1069.
Sectarianism in Medicine. L. Straber.—p. 1072.
Nature of Aseptic Osteonecroses. K. Weib.—p. 1077.
*Toxic Action of Ammonia Produced in the Organism. O. L. E. de Raadt.—p. 1079.
*Treatment of Anthrax. O. Scherefettin.—p. 1083.
Carcinoma of Esophagus and of Stomach. C. Sternberg.—p. 1084.
Curettage and Biopsy in Early Diagnosis of Carcinoma of Uterus. P. Werner.—p. 1085.
Various Forms of Epididymitis and Their Sequelae. H. Rubritius.—p. 1085.

Toxic Action of Ammonia Produced in the Organism.—De Raadt states that the ammonia poisoning which develops in uremia, in eclampsia and in diabetic coma not only gives clinical manifestations in the form of intoxication but can also be detected chemically. The uric acid content of the blood is considerably increased (toxic disintegration of the body cells), and the marked increase of lipoids (fatty acids, lecithin, free cholesterol and cholesterol ester) in the blood is the result of ammoniacal saponification of the lecithin from the cell lipoids.

Treatment of Anthrax.—Scherefettin reports his observations in the treatment of thirty-five persons with anthrax. He asserts that in cases of minor severity the patients may recover without treatment or the condition may be counteracted by local cauterization. However, persons with the severe forms of anthrax, especially those with extensive edema, require serotherapy. Case reports indicate that from 50 to 100 cc. of serum was administered partly intravenously and partly intragluteally. Anthrax septicemia and the pulmonary form, which formerly had a fatal outcome in most cases, could be checked by the early administration of large doses of serum. There can be no doubt that serotherapy is the most effective form of treatment of anthrax; however, its action mechanism is not entirely clear as yet, for anthrax serum is neither bactericidal nor antitoxic. The author thinks that its therapeutic action is due to the fact that it induces a leukocytosis. It acts as a sensitizer on the leukocytes and on the tissue cells of the diseased parts. In accordance with this assumption the author tried irritation therapy in cases of medium severity. He injected from 5 to 10 cc. of milk but was always ready to resort to serotherapy in the event that an exacerbation should set in. In one case the results of the milk injections were highly favorable, but in other cases the recovery was less rapid than following the administration of serum. In some cases it was helpful to combine serotherapy and protein therapy. In order to hasten cicatrization the acid-base equilibrium was influenced by including yogurt milk in the diet, and the results of this seemed to be favorable.

Zeitschrift für Kinderheilkunde, Berlin

51: 267-434 (Aug. 18) 1931

*Simultaneous Determination of Calcium and Phosphorus in Blood Serum of Nurslings Without Necessity of Sinus Puncture. E. Freudenberg.—p. 267.
Icterus Neonatorum Gravis. St. Kramsztyk.—p. 273.
*Etiology and Clinical Aspects of Acute Suprarenal Insufficiency (Hemorrhages and Hypoplasia of Suprarenals). T. Baumann.—p. 276.
Pathogenesis of "Acute Leukemia." R. Grosser.—p. 294.
Clinical Aspects of Terminal Stage of Pulmonary Tuberculosis in Children. D. Schenkmann and V. Russatje.—p. 309.
Anthropometric Studies on Development of Thorax in Children. J. Brock and Emmy Stemmler.—p. 322.
*Weight Increase of Children with Inactive Tuberculosis During Fresh Air Treatment. W. Kornfeld and H. Schüller.—p. 340.
Behavior of Size of Soft Parts During Fresh Air Treatment in Children with Inactive Tuberculosis. W. Kornfeld and H. Schüller.—p. 349.
Persistence of Weight Increases After Fresh Air Treatment of Children with Inactive Tuberculosis. H. Holzer and W. Kornfeld.—p. 363.
Behavior of Size of Soft Parts of Children After Discharge from Fresh Air Treatment. W. Kornfeld and D. Orosz.—p. 381.
Gold Therapy of Pulmonary Tuberculosis During Childhood. O. Wiese and L. Hindersin.—p. 396.
Observations on Blood Sugar Regulation in the New-Born. F. Haass.—p. 400.
Mechanical Registration of Heart Sounds in Premature and Full Term Infants. W. Gaus.—p. 409.
Peculiar Fluctuating Generalized Glandular Tumors of Unknown Etiology in a Boy Aged 11. O. Wiese.—p. 432.

Determination of Calcium and Phosphorus in Blood Serum of Nurslings.—Freudenberg recommends Warkany's modification of the Bell-Doisy-Briggs method and suggests some improvement. The micromethod which he describes permits one to determine the calcium content from 0.2 cc. of serum. For the simultaneous determination of both calcium and phosphorus only 0.8 cc. of serum is required, even if double analyses are made. The 0.8 cc. of serum can be extracted readily from 2 cc. of blood, and under anesthetization with ethyl chloride it is easy to obtain this quantity of blood from the heel of the infant by means of a small incision. Thus it is not necessary to make a sinus puncture.

Acute Suprarenal Insufficiency.—Baumann discusses the various theories on the etiology of suprarenal insufficiency in the new-born, in nurslings and in young children. He shows that suprarenal insufficiency in the various periods of life are not to be etiologically differentiated mainly according to age constitution and organ constitution so much as by the environmental influences characteristic for each age group. In the new-born, birth trauma and stasis in the cava system besides the special predisposition of the organ are the main causes, whereas the infectious-toxic-septic noxa is extremely rare. However, in later life infectious-toxic-septic factors with eventual predisposition of the organ are the primary causes, and cases in which stasis is the etiologic factor are rare. The author further compares the acute insufficiency in cases of hypoplasia of the suprarenals with the hypofunctioning of the islands of Langerhans in infantile diabetes mellitus. In the last part of the article four clinical histories are given. In one case one of the suprarenals showed calcification; in another patient, who died following pneumonia, there existed hypoplasia of the suprarenal cortex with acute insufficiency symptoms, and in two cases acute insufficiency was the result of suprarenal apoplexy of a septic-toxic pathogenesis.

Weight Increase of Children with Inactive Tuberculosis During Fresh Air Treatment.—On a material of 600 children from the Vienna children's hospital, who received fresh air treatment on account of inactive tuberculosis, Kornfeld and Schüller studied the increase in weight. When the children were divided without selection into several groups of equal number, according to the duration of their treatment, the averages of the weight increases showed only slight and irregular fluctuation. However, when groups of children were compared that had been selected according to certain biologic characteristics, certain regularities were observed. In general the girls showed a relatively better increase than boys, older children a better increase than younger children, and in those who in the beginning were considerably underweight the increase was more marked than in those who had been almost normal or slightly overweight. However, occasionally there were exceptions to this rule, in that children who were considerably undernourished, in accordance with their constitutional type, gained only slightly or not at all. It was also frequently noted that the taller children showed a lesser increase in weight than the shorter ones; this the authors ascribe to the inherent differences between the pyknic and the asthenic constitutions.

Zentralblatt für Chirurgie, Leipzig

58: 2129-2176 (Aug. 22) 1931

*Plastic Surgery with Soft Parts to Effect Closure of Special Forms of Empyemic Cavities. R. Nissen.—p. 2130.
Thyroidal Hormone Not Effective Against Postoperative Thrombosis and Embolism. A. Troell.—p. 2132.
Rare Tumors on Nail Bed (Neuromyo-Arterial Glomus Tumors). H. Picard.—p. 2133.
Incarceration of Gallbladder in Umbilical Hernia. M. Köhler.—p. 2136.
Methods, Indications and Technic in Treatment of Hypertrophy of Prostate. J. P. Kruimel.—p. 2137.
Peritonitis Chronica Fibrosa Incapsulans (Zuckergussdarm): Case. Soekarjo.—p. 2145.
Treatment of Testis Retained in Inguinal Canal. V. Lieblein.—p. 2147.
Bronchus Stenosis Caused by Aspiration of Foreign Body. F. Jacoby.—p. 2149.
Gangrenous Appendicitis in Patient with Hemophilia. C. Prima.—p. 2152.

Plastic Surgery with Soft Parts to Effect Closure of Empyemic Cavities.—Nissen points out that there are some forms of empyemic cavities that cannot be completely obliterated, even by resection of ribs and by excision of the parietal pleural indurations, for there usually remains a small cavity at the posterior mediastinal angle. For the plastic obliteration of these residual cavities at the posterior mediastinal recess the author employs flaps that consist of the skin, the fat and the muscular elements of the long extensors of the back. The fat and muscle tissues are rolled up and placed in the cavity. The author describes the technic and also gives diagrams showing the various stages of the operation. He employed it successfully in two patients in whom several other surgical treatments had failed.

Zentralblatt für Gynäkologie, Leipzig

55: 2529-2592 (Aug. 22) 1931

*Roentgen Diagnosis of Intra-Uterine Death of Fetus. E. Kehrer.—p. 2530.
*Roentgenologic Indications for Interruption of Pregnancy. H. Naujoks.—p. 2540.
Prevention of Conception by Graefenberg's Ring. K. Sommer.—p. 2547.
History of Vaginal Contraception. Marie C. Stopes.—p. 2549.
Prevention of Conception and Clinical Instruction. W. Liepmann.—p. 2551.
Clinical Instruction in Prevention of Conception. R. Elkan.—p. 2555.
Is the Physician Justified in Refusing to Give Instruction About Contraception? E. Goldberg.—p. 2557.
Experimental or Practical Tests of Contraceptives? E. Grünhaut-Fried.—p. 2560.
Prevention of Conception and the General Practitioner. F. Meder.—p. 2561.

Roentgen Diagnosis of Intra-Uterine Death of Fetus.—On the basis of roentgenograms of fetuses that died before birth, Kehrer concludes that there are certain signs from which one may suspect death of the fetus; if several of them concur, they constitute conclusive evidence for intra-uterine death. The most demonstrative signs of intra-uterine death are the superposition of the flat cranial bones in the manner of roofing tile, the shriveling of the cranial contents, the occipital prolongation of the head in the shape of an isosceles triangle, and the sharp angular bending of the vertebral column in the form of kyphosis, lordosis or scoliosis. Especially demonstrative is a sort of gibbous formation or a lordosis in the distal half, particularly in the sacral region of the vertebral column. All other roentgenologic signs that have been considered as indicative of intra-uterine death of the fetus do not have absolute demonstrative value, since they may occur also in different conditions. These symptoms are asymmetry of the cranium, flattening of the biparietal vault of the cranium, and the displacement of the face and the front of the fetus away from the center of the uterus and toward the wall of the uterus with simultaneous deflection of the spinal column. The author considers the steep elevation of one arm behind the occiput together with the lateral flexion and torsion of the cranium as the earliest sign of intra-uterine death, as a manifestation of the rigor mortis of the fetus, provided there are other signs that indicate death.

Roentgenologic Indications for Interruption of Pregnancy.—As indications for the interruption of pregnancy Naujoks considers: (1) the definite roentgenologic demonstration of a malformation that will make the child nonviable and (2) the erroneously performed direct irradiation of the fetus with large doses of roentgen rays during the first period of gestation. However, the fear of a roentgen injury of the ovum either in early or late fertilization is not sufficient reason for an interruption of pregnancy.

Sovetskaya Klinika, Moscow

15: 1-106, 1931

*Giardia Intestinalis. L. M. Lichta.—p. 11.
*Giardia Intestinalis in Biliary System. A. N. Volodin.—p. 18.
*Giardia Lamblia. L. F. Lincher and M. G. Traynin.—p. 30.
Bang's Disease in Man. M. S. Tinker.—p. 39.
Clinical Aspects of Typhoid. L. M. Meyerovich.—p. 51.
Infectious Exanthems of Undetermined Origin. N. J. Moroskin.—p. 58.
Serum Antivibrion Septique. I. N. Velikanov and E. N. Tolstukhlina.—p. 64.

Giardia Intestinalis.—Lichta, at Rostov, examined the duodenal contents of sixty-two patients and found that twelve of them harbored Giardia intestinalis. The protozoal group of diseases are usually found in the tropical or subtropical climates. The author finds that in some parts of Turkestan and Caucasia from 40 to 50 per cent of the population have a protozoal infection. Parallel with the infection of the intestinal and biliary system, the toxins of Giardia intestinalis may be carried by the blood stream throughout the entire body. In all cases of cholecystitis, ulcers of the stomach or intestine, chronic enterocolitis and appendicitis, the author advises search for Giardia intestinalis in the duodenal contents. The treatment with a combination of arsphenamine and methenamine brought permanent relief to three patients but unfortunately only temporary relief to others. A cholecystectomy may be performed in intractable cholecystitis. Treatment with arsphenamine and methenamine alleviates the pathologic condition and causes the flagellate to disappear or become avirulent and immobile. Examination of operative material (two cases) leads the author to believe it may be easier to treat Giardia intestinalis infections in the gallbladder and bile ducts than in the duodenum. The author believes that infection may follow the ingestion of contaminated food. Mice, rats, cats and dogs harbor Giardia intestinalis in the intestinal tract. The food or water may be contaminated directly, when the flagellate is carried by the agents themselves, or indirectly, when it is carried on the feet of the house-fly.

Giardia Intestinalis in Biliary System.—Volodin's observations cover three and one-half years of study. During this time particular attention was placed on the relation of Giardia lamblia to diseases of the liver, gallbladder and biliary ducts. A review of the literature and the results of his own experiments lead him to the following observations: Lamblia infections may be either the primary and etiologic, secondary and aggravating, or passive and temporarily harmless factors in disease. When the body loses its resistance, Giardia lamblia, a commensal, may become virulent and assume a pathogenic rôle. Ignorance of the rôle of the flagellate in diseases of the liver, gallbladder and bile ducts has often made clinical diagnosis unnecessarily difficult. On the other hand, recognition of the flagellate infection explains some asthenic and arthritic-pyknotic and vegetative stigmatic conditions. The author examined 172 patients with biliary diseases and performed fractional duodenobiliary drainage in 148 cases. Six and seven-eighths per cent harbored the flagellate in the biliary contents; when cholecystitis, cholangeitis and hepatitis were considered, the proportion was 10 per cent; whereas, in conditions of cirrhosis, neoplasm, echinococcus, as well as the so-called icterus infectiosus and icterus catarrhalis, the flagellate was never isolated. Clinically the flagellate proved to be the primary pathogenic agent in four of every ten cases of hepatic biliary disease and one of every two cases of gastro-intestinal disease. In the diagnosis of disorders of the liver, gallbladder and bile ducts, the author advises duodenal drainage and examination of the contents before and after the intake of magnesium sulphate. No effective method of treating lamblia infections is known. From 25 to 33 per cent solution of magnesium sulphate, alone or in combination with quinine, emetine, methenamine, acriflavine base and arsphenamine, seemed effective. The flagellate was removed in the process of emptying the gallbladder and draining the bile ducts and duodenum. The therapeutic instillation was made by mouth. The author believes that the experimental and clinical recognition that Giardia lamblia is an important pathogenic factor in gastro-intestinal and hepatobiliary infections should influence future hygienic and public health measures.

Giardia Lamblia.—Limcher and Traynin examined fifty-three patients whose condition indicated duodenobiliary drainage. Sixteen harbored Giardia lamblia and of these fifteen, or 93.75 per cent, had hepatitis, cholecystitis, and cholangeitis; four did not have the flagellate in the gallbladder. When the flagellate is found in the duodenobiliary contents and measures are taken against it the patient improves and the flagellates either decrease in number or disappear temporarily. The authors recommend a combination of emetine and magnesium sulphate as well as acetarsone and neoarsphenamine instilled through the duodenal tube. These treatments do not insure complete cure. The authors recommend further study.

Hospitalstidende, Copenhagen

74: 725-752 (July 2) 1931

Some Healing Processes in Tuberculosis in Right Upper Lobe. K. Isager.—p. 725.

*Sensibilization to Light with Acriflavine Base with Especial Reference to Local Treatment of Lupus. H. Videbech.—p. 737.

Local Treatment of Lupus.—Videbech reports four cases of lupus vulgaris in the oral cavity and throat given local arc light treatment after sensibilization with acriflavine base. The therapeutic effect of the sensitization was doubtful. In experiments in white rabbits, intravenous injections of acriflavine caused a noticeable macroscopic sensibilization to local irradiation of the skin with arc light. Tests of the light reaction in tissues sensitized by acriflavine, in excisions from irradiated rabbit ears, showed a relatively increased effect in the connective tissue.

74: 753-780 (July 9) 1931

*Heterologous Transplantation and Application in Determination of Lethal Dose for Human Lymphosarcomas. C. Krebs and Fanny Busch.—p. 753.

*Clinical Aspect of Malignant Tumors of Spinal Column. E. Thomsen.—p. 765.

Lethal Dose for Human Lymphosarcomas.—Krebs and Busch found that transplantation of human tumors into strongly irradiated rats and mice resulted in a considerable growth after six days. The greatest size was attained between the tenth and the twenty-first day, and after the twenty-fifth day new tumors did not appear. The lethal dose for human lymphosarcomas, tested by implantation of irradiated tumor tissue into irradiated mice, seemed to be approximately 2 unit skin doses, or apparently the same as for mouse lymphosarcomas.

Malignant Tumors of Spinal Column.—In Thomsen's first case the violent neuralgic pain in the back, pronounced albuminuria, anemia and general exhaustion, together with the roentgenograms, pointed to myeloma, and necropsy disclosed myelomas corresponding to the processes seen in the spinal column in the roentgenograms. In the second case with similar symptoms, roentgen diagnosis of tumor metastases in the spinal column, and clinical diagnosis of occult cancer, multiple myelomas were found at necropsy. In the third instance there was a tonsillar sarcoma followed by sarcomatosis, particularly of the bones, with early manifestation in the spinal column.

Hygiea, Stockholm

93: 529-576 (July 31) 1931

*Treatment of Anemia with Large Doses of Metallic Iron. G. Lindberg.—p. 529.

Daily Variations and Origin of Urobilinuria. E. B. Salén and B. Enocksson.—p. 553.

Treatment of Anemia with Large Doses of Metallic Iron.—Lindberg asserts that large doses of metallic iron (from 3 to 6 Gm. daily) in the form of powder before meals is well borne and effective in anemia of various kinds. Pulverized iron (ferrum reductum or pulveratum) is richer in iron and cheaper than other both organic and inorganic iron preparations and should be tried in all cases of simple anemia, postinfectious and posthemorrhagic anemias, the anemia of pregnancy and postpartum anemia, together with anemia in premature children. The iron is believed to stimulate the bone marrow and in certain graver cases also to substitute for the iron deficiency.

Svenska Läkaresällskapets Handlingar, Stockholm

57: 109-236, 1931

Exogenous and Endogenous Factors in Etiology of Nervous Diseases. R. Almqvist.—p. 113.

*Respiratory and Pulsatory Variations in Pressure in Spinal Subarachnoid Space and Significance in Diagnosis of Block. N. Antoni.—p. 119.

Experimental Studies in Hypnotism. J. Billström.—p. 167.

*General Disturbances as Result of Traumas of Skull: Changes in Spinal Fluid. R. Eeg-Olofsson.—p. 173.

Spiritualism, Mysticism and Excesses of Religious Nature as Cause of Mental Disease. B. Gadelius.—p. 185.

*Clinical Studies on Prognosis in Chronic Epidemic Encephalitis and Result of Treatment with Recurrent Fever: I. G. Höglund and V. H. Sjögren.—p. 204.

*Spontaneous Pneumothorax Due to Traveling Needle: Case. H. C. Jacobæus.—p. 234.

Respiratory and Pulsatory Variations in Pressure in Spinal Subarachnoid Space and Significance in Diagnosis of Block.—Antoni finds that rises of pressure of about 2 cm. on inspiration constitute a relative indication of block. Rises of 2 or 3 cm. or more occur almost exclusively in spinal block. Increases of over 4 cm. occur only in extradural block. In intradural block an increase of between 2 and 3 cm. may be seen but is sometimes absent. Intramedullary tumors of moderate size apparently show normal curves; in a case of extremely large glioma which filled and distended the dural sac the curve was also normal. In three out of ten cases of extradural block, the pressure was unchanged during the entire respiratory phase; in the other seven there was marked increase on inspiration. In several cases of intradural and of extradural block, a steplike increase of pressure was noted on inspiration, with standstill on expiration. Fifteen cases of certain block and six of doubtful block are reported in detail, with figures.

General Disturbances as Result of Traumas of Skull.—Eeg-Olofsson says that lumbar puncture in twenty-seven cases of trauma of the skull, done from two months to three years after the accident, revealed changes in the spinal fluid in fifteen. In eight cases there were changes in pressure, with rise in five and reduction in three, and in seven there was an increase in the globulin content, without increased cell count. The ability to work does not depend directly on the changes in the spinal fluid; individual characteristics play an important part.

Chronic Epidemic Encephalitis: Result of Treatment with Recurrent Fever.—Höglund and Sjögren report 182 cases of chronic epidemic encephalitis. Eighty-eight men and fifty women had had typical acute epidemic encephalitis, the majority in connection with epidemics of encephalitis in 1920 and 1921. Their study of the fifty-five cases in which recurrent fever treatment was not given shows the prognosis to be extremely poor in every regard, with marked tendency to progression of all neurologic symptoms, complete inability to work in 75 per cent, and a mortality of 38.2 per cent in an observation period of from one to ten years. Recurrent fever treatment, carried out in eighty cases, resulted in improvement during treatment in the akinetic symptoms, the hyperkinetic being usually less influenced and occasionally increased. During the subsequent months and years a notable subject and objective improvement was frequently observed, but on longer observation this improvement usually diminished and in many cases an aggravation of some or all symptoms set in. There was complete incapacity for work in 73.7 per cent of the cases. The mortality in this group in the observation period of from one to ten years was only 5 per cent.

Spontaneous Pneumothorax Due to Traveling Needle: Case.—In the case reported by Jacobæus, the needle is thought to have been introduced into the body by the patient's lying on it in sleep. The first roentgen examination, which revealed the pneumothorax, showed the larger part of the needle in the posterior wall of the chest; on the second examination five weeks later the needle was seen partly in the lung tissue, and three days later the foreign body was entirely in the lung. The needle was removed by the aid of thoracoscopy, by the insertion of a trocar and the use of biopsy scissors.

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THE FEMALE URETHRA

A CLINICAL AND PATHOLOGIC STUDY

CHAIRMAN'S ADDRESS *

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DALLAS, TEXAS

The size and anatomic structure of the female urethra is so simple, as compared with the much longer and much more complex male urethra, that it has been carelessly assigned a much less important place in urologic thinking than it really deserves.

Modern textbooks treat the diseases of this structure so lightly that one is led to believe the female urethra remarkably free from pathologic deviations. So much has this attitude become general that I am convinced that many sufferers are allowed to run along for years crying for help and having their real condition repeatedly run over in the daily search of the bladder and upper urinary tract for a satisfactory explanation of the patient's symptoms.

Bladder irritation, frequency, burning and, at times, pain are symptoms that are the common denominator of many urologic conditions. Urologists have preached the doctrine far and near, until nearly all are now aware of the fact that the group of symptoms mentioned does not mean gravel or cystitis. But, in our eagerness to show that stone in the kidney, renal tuberculosis, pyelitis, stricture of the ureter and the like are frequently called to attention by the previously named symptom complex, we have failed to include inflammation of the female urethra as another pathologic entity that frequently is called to attention by this group of symptoms which have been classed as bladder irritation.

Only a few years ago I was in one of the large urologic clinics of the country and saw presented a woman of 45 whose sole symptoms were frequency, burning and the like. A careful cystoscopy had been done and a normal bladder reported. Bilateral pyelograms had been done and both were normal: cultures from both kidneys were negative. The urologist, throwing up his hands, said "What are you going to say? Everything negative, and yet she has the irritation." After the clinic, in a private conversation with the urologist, I suggested that the woman's urethra might be causing the trouble. A survey of the urethra showed an old granular condition of the proximal half of the urethra, with several small polypoid masses of tissue lying just within the grasp of the sphincter. The patient had had a chronic inflammation of the urethra for years, and this had finally resulted in the gross overgrowth of tissue which was producing the discomfort she had been complaining of for years.

I am thoroughly convinced from my clinical experience that the female urethra produces a great many recurring cycles of bladder distress. Patients come complaining of attacks of frequency, burning and varying types of pain connected with the urinary act. They have been told that they have a nervous bladder (whatever that is); that their trouble is in their head and not in the other extremity. They have been told to get interested in something and forget their bladder. But, alas, these poor women, try as they would, could not transfer their thoughts or attention to some distant province when their bladders continued to burn with unquenchable fire.

This chronic inflammation of the female urethra may have had an unrecognized beginning and a more or less innocent development, but, once well matured, it is capable of calling itself to the attention of its victims in very insistent and in no uncertain tones, and, in some cases, I have seen it produce the most severe symptoms, causing the patient untold pain and discomfort.

Two cases stand out in my group and are worth recording.

CASE 1.—Mrs. M., aged 30, a widow of two years after a marriage lasting three years, came to me complaining of bladder discomfort that had started soon after marriage and had continued with little interruptions until the present. During the first few years the attacks were intermittent and characterized by a frequent desire to void, with little or no pain. The attacks gradually grew more frequent and more severe, and, for a year prior to consulting me, she had been almost a constant sufferer from an insistent desire to void, coupled with a pain in the region of the urethra, which had almost made a nervous wreck of her. She was tormented day and night, getting her only comfort from prolonged sitz baths or some form of opiates. Otherwise her history was completely negative. She had always been well and strong save for this bladder irritation.

A physical examination revealed nothing of interest. A roentgenogram was negative. The urine was normal. A pelvic examination showed that the uterus and adnexa were normal. Cystoscopic examination showed a tight urethra, 24 F. being difficult to introduce. The bladder and ureteral openings were normal.

Withdrawing the McCarthy cysto-urethroscope into the urethra, I found the entire proximal part of the urethra filled with small polypoid masses of tissue, some sessile and some pedunculated and moving in the irrigating fluid, as the fronds of a papilloma.

CASE 2.—The history of patient 2 was almost a duplicate of that of patient 1, except that she had suffered so intensely for six months that she had resorted to morphine definitely for relief.

The urethra was so tight that only a number 18 F. could be gotten into the urethra. Under a general anesthetic, a number 18 cysto-urethroscope was passed, and a similar condition to that in case 1 was found.

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* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

Both of these patients were relieved promptly and ultimately cured by attention to the inflammatory process in the urethra.

I have seen them in all stages of this condition from these two very severe cases on down to a mild intermittent irritation.

A large number of these cases have had their origin in some previous attack of gonorrheal urethritis, and yet I am sure that a large number are not gonorrheal in origin and are due to some other organism reaching the urethra from the vulva and vagina, or perhaps are metastatic from some distant focus.

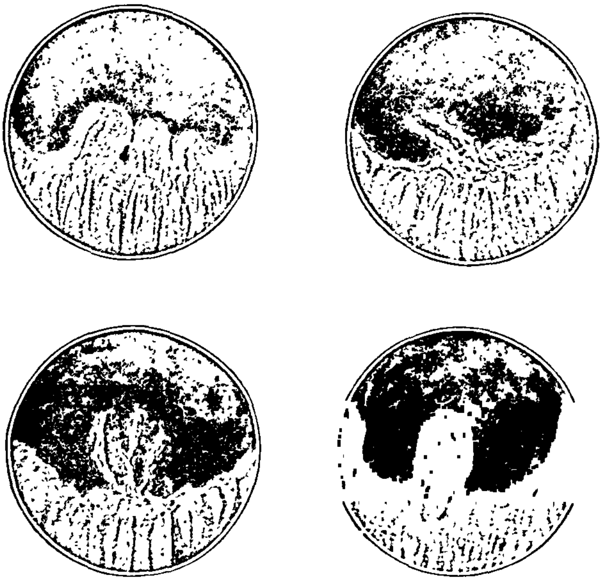

Fig. 1.—Cystoscopic views, showing actual existing masses and their arrangement in a clinical case.

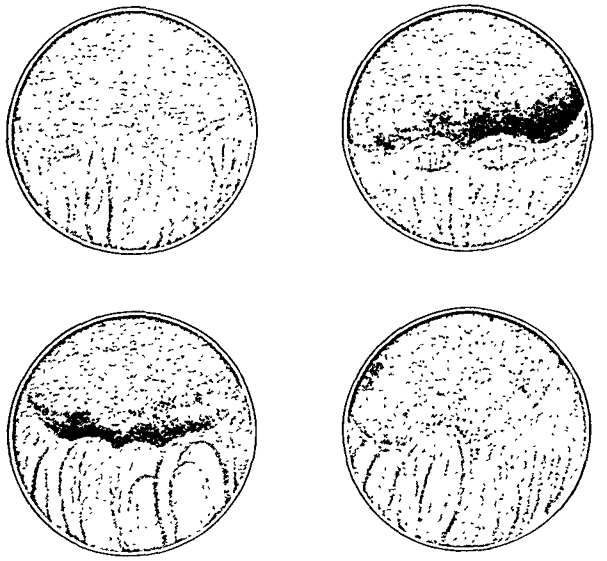

Fig. 2.—Cystoscopic views showing actual existing masses and their arrangement in a clinical case.

Two things stand out in the pathology of this condition. First is a narrowing of the urethral lumen, resulting from the cicatricial contraction of the periurethral tissue. These cases show varying degrees of stricture. The normal caliber of the female urethra is about 30 to 32 F., and I have frequently seen this reduced to 20 and 22 F. and in some cases even to 18 F., and in one woman, aged 55, a complete retention had occurred requiring the use of a filiform guide, with a La Fort follower, in order to draw off the retained urine. Urologists have had their attention so focused on stricture of the male urethra that they have almost lost sight of the fact that exactly the same condition can and, in many cases, does exist in the women who complain of urinary irritation. The stricture is usually limited to the distal half or two thirds of the urethral tube. In such cases the urethra can be distinctly felt as a hard fibrosed cord in the anterior vaginal wall.

The second pathologic entity seen in these chronically inflamed female urethras are certain well defined changes in the mucous membrane, covering the proximal half of the urethra and particularly on that part covering the sphincter. Here may be seen an intense engorgement of the mucosa, an early stage in the process, or definite granulation tissue just as is seen in the posterior urethra of the male. This granular urethritis may, and frequently does, extend over the sphincter and into the adjacent bladder mucosa in a collaret effect around the internal vesicle opening. These small groups of granules can be definitely seen by any of the modern close view cysto-urethroscopes, or better by the McCarthy panendoscope.

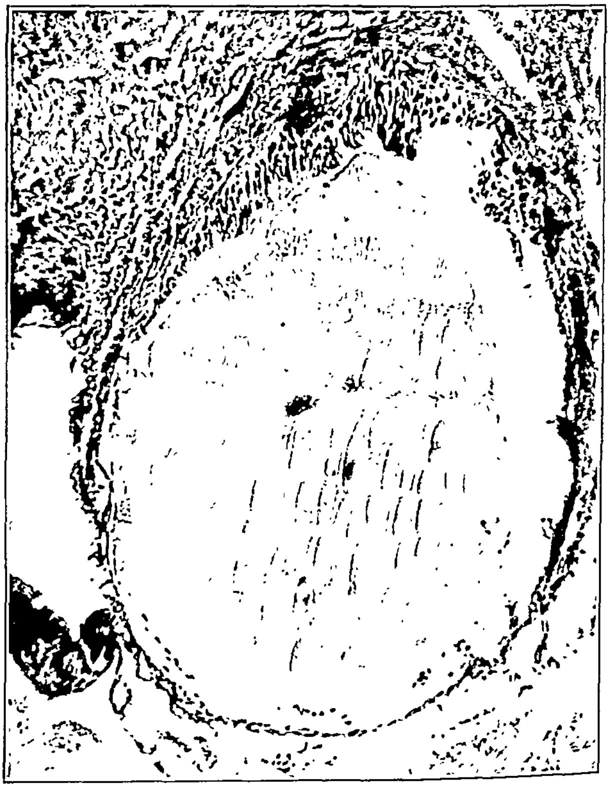

Fig. 3.—Papillary mass snared from female urethra, showing well developed gland structure with large amount of colloid-like retained secretion.

In addition may be seen small groups of pinhead size cysts, grouped frequently in little lines running longitudinally along the fold of the urethral mucosa. In some of these the contents of the little cysts seems to be of a brownish or golden color, giving to this area a little yellowish tinge.

In still other cases this chronic inflammatory process has progressed one step further and well defined polypoid masses are seen hanging from the circumference of the sphincter. These vary in size and shape rather widely, some being sessile and merely a well circumscribed bulging area, others being well defined and almost pedunculated, while others take on the characteristics of a papillary frond that may be seen moving or floating in the irrigating fluid as it flows into the bladder. In nearly all these masses a distinct vascular loop may be seen as the central structure. So definitely has my attention been called to these easily seen vascular loops that I have classified another group of cases as a prepolypoid group. In these cases the mucosa over the sphincter seems to be more or less loose and definitely hypertrophied, with here and there a well defined vascular loop plainly visible as a framework on which, I feel sure, if left alone, a polypoid mass would be developed. This process seems to be limited to the posterior portion of the urethra and is distinctly separate from the urethral caruncle seen at the meatus.

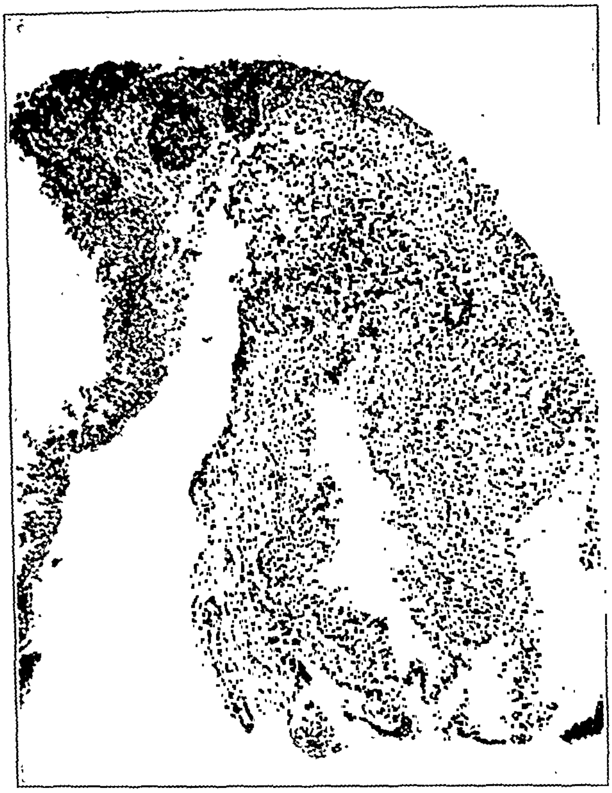

Fig. 4.—Papillary mass snared from female urethra, showing well developed gland acinus in center of mass.

This area in the posterior portion of the urethra may be seen during a quiet stage of its life history and then simply the changes that I have detailed are seen; but at other times this area may be seen during an acute inflammatory flare up, and then the picture has an added interest, for then the whole surface is intensely red and angry and small punctate spots may be seen from which seem to be extruded small strands or shreds of mucus and pus. And, during these acute flare ups, the bladder mucosa may be diffusely inflamed or it may be inflamed in discrete patchy areas (areal cystitis).

In looking for these changes in the region of the sphincter, one caution has to be observed in order not to overlook some of the less well developed types of change. Of course in the well developed polypoid mass, almost any kind of survey will show them, but in those cases in which the process is in an early stage and the masses are not so well defined, one may, by looking only as the cysto-urethroscope is being withdrawn, fail to see them, for the simple reason that the tug of the mucosa on the shaft of the cystoscope tends to smooth out the mucosa, and in this way these smaller masses may be obscured. If, however, after the window has been withdrawn into the lumen of the urethra, the cystoscope is then gently pushed back into the bladder, one will at once see the little mass take form and be plainly visible.

Patience and care will show many things in this small area that have been overlooked, and in many instances these little changes will be the sole cause of the patient's discomfort.

The capacity of an irritation in the female urethra to be transferred by a sympathetic nerve reflex to some distant location was first called to attention by Civiale in 1850, but from that time until recently urologists have been blind to this very important fact.

It has long been known that an inflammatory lesion in the posterior urethra of the male can cause all kinds of referred pain in the groins, back, legs and even feet, but we seem slow to recognize the same condition when produced by a similar inflammatory lesion in the female urethra.

The first one to be called definitely to my mind, several years ago, was a pain located in the groin and running up along the ureter. A pain of this nature is not a severe colicky pain, but a dull aching pain that gives the patient concern, because she attributes it to the ovaries or tubes, and in some cases the pain and bladder irritation have led to a pelvic exploration and various pelvic operations, following which the patient continues to have the same trouble, unchanged by the operation.

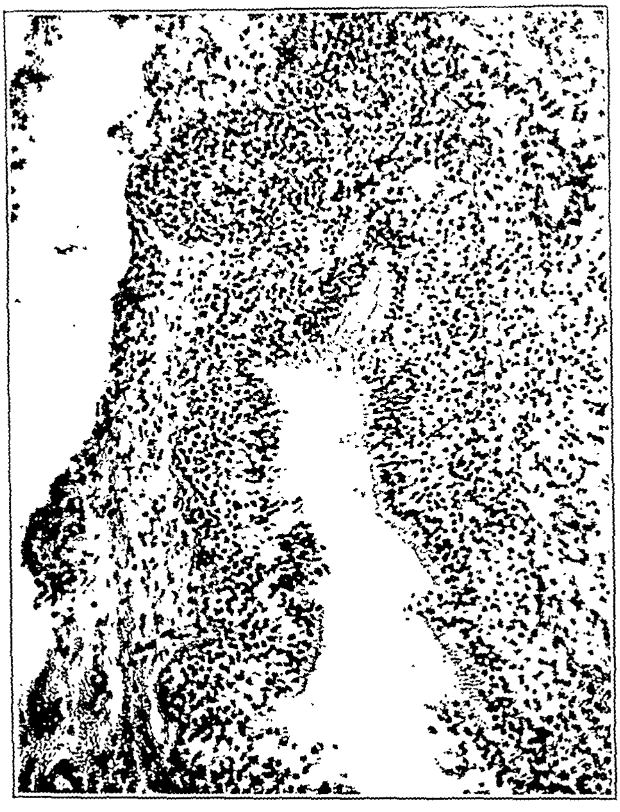

Fig. 5.—High power view of gland acinus shown in figure 4.

Such a case I have under observation now:

A woman, aged 41, married, a multipara, for fifteen years has been complaining of an irritation of the bladder, amounting at times to a most distressing dysuria; associated with this is a pain running up into both loins, never a colic, but always some pain. She has had three distinct surgical procedures, for the sole purpose of relieving the pain in the abdomen and the bladder irritation. One was an appendectomy; one a fixation of the uterus, and finally the uterus was removed, but with no result. Two years ago she was East and consulted a distinguished urologist and gynecologist, who diagnosed her case as double stricture of the ureters. These were dilated over a period of six months, with no relief.

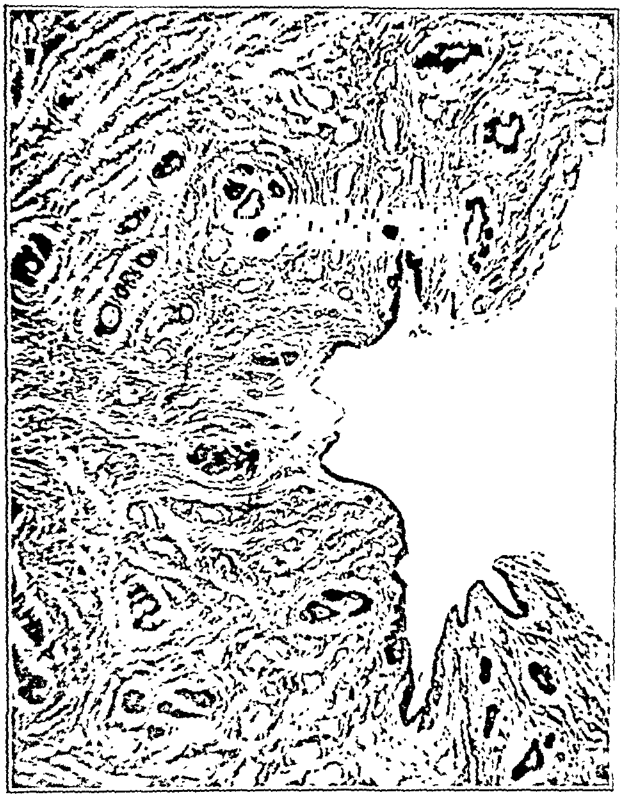

Fig. 6.—Anatomic specimen: section of female urethra near bladder, showing very rich glandular area; glands scattered out into muscular layers of urethra.

I was consulted soon after this and in making an independent examination failed to find any narrowing of the ureters, either by a wax bulb or by a pyelo-ureterogram. The only pathologic condition found was that of a gross chronic inflammatory urethra, with several polypoid masses in the proximal part of the tube. The bladder was normal, and cultures from both kidneys were negative. The lumen of the urethra was reduced to a 22 F., which, in my judgment is a definite stricture.

I directed my efforts at the relief of the urethral condition and she began immediately to get better and is now almost entirely relieved of her bladder irritation and the pain in her groins and side as well.

I am thoroughly convinced that many cases of so-called stricture of the ureter have been relieved, not by the dilation of the ureter, but rather by the associated but unconscious dilatation of the urethra that was the result of the passage of the cystoscope through the urethra.

So much have I been impressed by the frequency of these pains in this condition that I have adopted as my own the view that any atypical pain in and around the female pelvis that has not a definite and connected history that points definitely to what it is should be considered a possible urethral reflex.

The urologist is not the only one who has overlooked this tiny but important field. The gynecologist has been guilty as well, for in many cases of bladder irritation he has hastily accused, convicted and condemned to operation at 8 o'clock in the morning a perfectly innocent uterus, tube or ovary.

How often have I listened to that oft told tale, "Doctor so and so said my uterus was pressing on my bladder and causing my bladder distress, but after the operation I have continued to have my same trouble." These cases many times prove to be a chronic inflammatory urethra, with or without stricture or gross proliferation, and proper attention to this lesion promptly relieves the sufferer.

So many times have I seen this sequence of events that I am firmly convinced that many pelvic operations would be saved were the gynecologist to learn that the female urethra is a very important anatomic structure, capable of producing not only the annoying symptoms of cystitis but also pain and discomfort in and around the female pelvis.

I think that I can truthfully say that in a long experience it has been the rare exception that I have ever been able to explain finally this annoying symptom complex cystitis on the basis of pelvic pathologic changes connected with the uterus, tubes or ovaries.

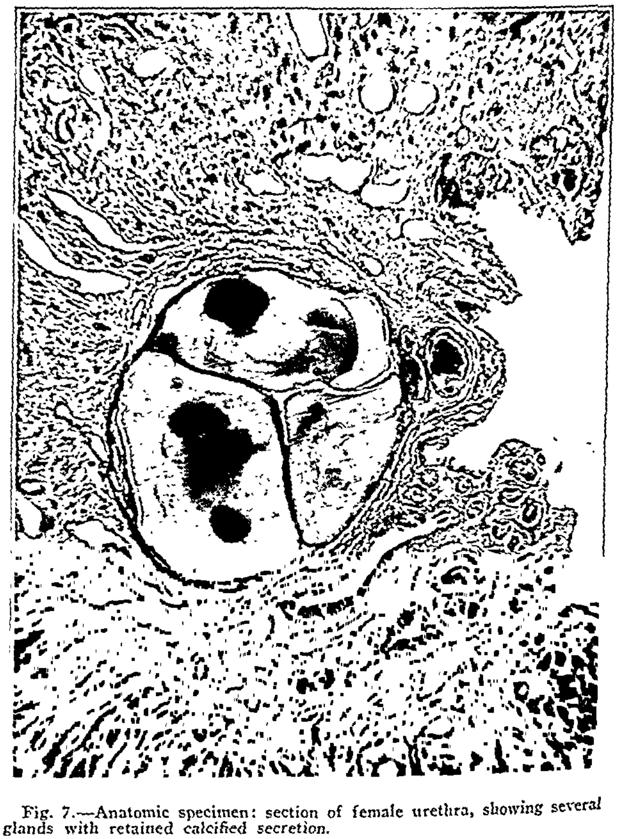

Fig. 7.—Anatomic specimen: section of female urethra, showing several glands with retained calcified secretion.

The uterus is designed to tilt forward and, to a small degree, press on the expanding bladder. Nothing could be more normal than for a uterus to press on the bladder as it rises full of urine into the anterior portion of the pelvis; but so far as producing any irritation of the bladder, I seriously question it. Granted that an anteflexed uterus, which by the way is a rare deflection, does, to a greater degree, so press the fundus into the roof and back wall of the bladder, it will not produce any irritation by reason of the position, for these walls so pressed on are the silent areas of the bladder and would never produce irritation unless associated with an intrinsic inflammatory process in the wall itself. Or, again, in considering the gonorrheal disease of the uterus, tubes and ovaries, how frequently do we see these acutely inflamed pelves giving rise to bladder irritation? In my experience very rarely, except as it can be proved to be due to a direct extension of the process into the urethra, and hence could not be attributed to the pelvic pathologic changes per se.

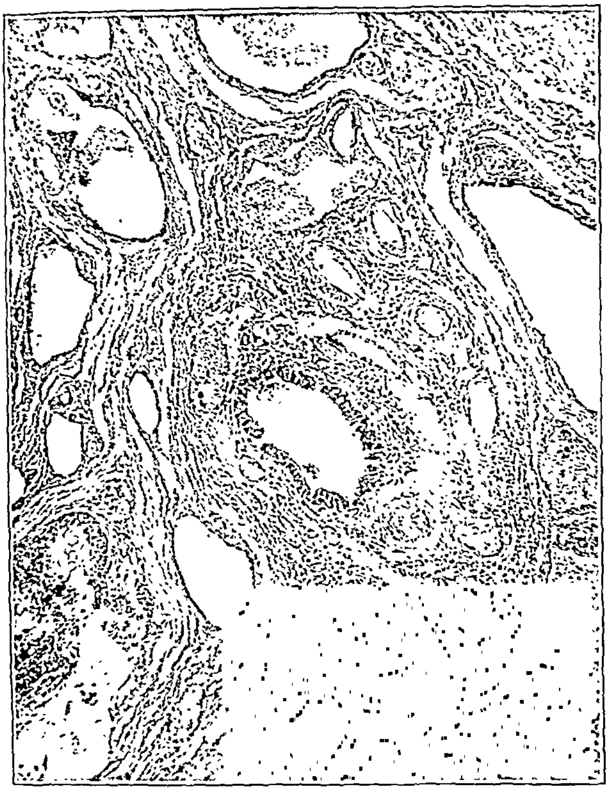
Fig. 8.—Anatomic specimen, same as figure 10, showing one well developed gland acinus with periacinous inflammatory infiltration.

On the other hand, one often sees in chronic pelvic inflammatory disease an irritation of the bladder which persists to plague the patient long after the pelvis has been cleared of its inflammatory débris, persists because it was and still is due not to the pelvic pathologic condition but to a local inflammatory lesion, located in the insignificant female urethra.

Another error that gynecologists frequently make is in promising a relief of bladder irritation by the repair of a perineal laceration, with varying degrees of cystocele. I am convinced that it is only the occasional cystocele that produces bladder irritation; many of them have no more to do with the bladder irritation that the patient is suffering from than the color of her eyes and hair.

Many times have I had these women come to me after such repair operations who had been promised relief from this one and only complaint, bladder irritation, and who are still complaining of the affliction. It is surprising to me to see how many of them have a urethra actually overflowing with these little inflammatory polyps. These patients have been uniformly relieved by attendance to the chronic inflammatory urethra.

So much for the clinical facts observed and recorded now by many clinicians, such as Pugh and Stevens of this country and Mr. Frank Kidd of London. The question that has for a number of years held my interest as well as the interest of many other clinicians is: What is responsible for the localization in this particular area of the urinary tract of an infection, and why should it be so definitely perpetuated? Mucous membranes do not persist in inflammatory reaction unless there happen to be gland structures in the area, or for other reasons, such as sinuses, in which an infection can be, and is, harbored for a long period.

Kelly and Skene and others have emphasized the ducts in the anterior urethra and have passed over as quite unimportant the glands in the remainder of the urethra as mere crypts and the like. Luys, in his book on cystoscopy, divides the urethra into two distinct anatomic parts: "the posterior part, which adjoins the neck of the bladder and is entirely muscular in structure; the anterior part, which contains an abundance of glandular orifices." The modern textbooks of anatomy and histology pass over the subject with only the most cursory observations and, so far, a rather careful search of the literature fails to reveal any very definite descriptions; yet for several years I have been convinced that there must be some more definite and important glands in this area of the female urethra, feeling that if this were true we then would have a ready and plausible explanation for these long observed clinical facts.

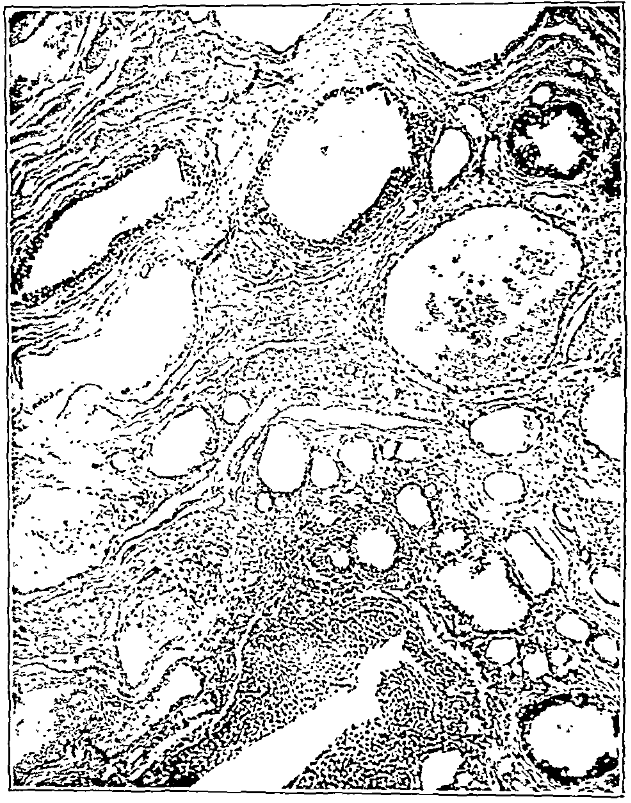
Fig. 9.—Anatomic specimen: section through female urethra near bladder, showing three well developed gland acini.

It was with a desire to clear up this question that I began a study, from a histologic and pathologic standpoint, of this area, and, while the study is not much more than definitely begun, I have been quite gratified with my results so far.

I have found, first of all, that the papillary masses themselves seem to have many rudimentary glandlike structures and some well developed gland structures, which leads me to suggest that the masses themselves are really adenomatous papillary structures, not mucous cysts or simply fibrous polyps, as has been suggested.

Second, I have found in many urethras a very definite group of tubular glands, located around and opening into the posterior portion of the female urethra. These have varied in size and number, and, in an occasional specimen, only a few gland tubules have been found. I have found that these glands are infected and show all the various changes that have been found in the prostatic ducts and tubules of the male. They are frequently quite widely dilated by the retained secretion into large cystic areas. In some cases these have gone on to the stage of actual calcification, as seen in figure 7.

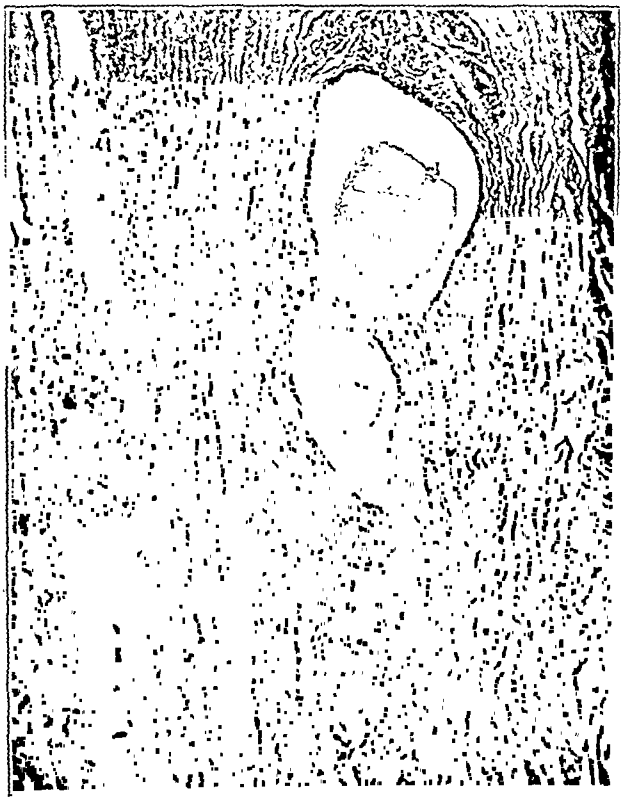

Fig. 10.—Anatomic specimen same as figure 8, showing gland with three well developed branches.

Having found these gland structures and having found them showing evidence of an inflammatory reaction, in some cases certainly existing for many years, I should like to submit for approval or rejection the tentative conclusion that these infected glands, so situated around the posterior portion of the female urethra, are the real cause of the various pathologic conditions seen in this structure. As a result of the long continued inflammatory changes, together with the edema of the mucous membrane of this portion of the urethra, stretching of the inelastic tissues occurs with the formation of these papillary structures. This origin would seem to classify these masses as inflammatory structures rather than neoplastic structures.

1717 Pacific Avenue.

ABSTRACT OF DISCUSSION

Dr. William E. Stevens, San Francisco: Dr. Folsom's paper impresses on one's memory the frequency of lesions of the female urethra. This organ has too often been looked on, until recently, merely as an avenue of approach to the bladder and upper urinary tract, and its lesions have been overlooked as etiologic factors in urinary disturbances in women and girls. About eight years ago, in presenting a paper before this society, I called attention to the frequency of strictures of the female urethra. One of our prominent urologists, who evidently did not believe much in strictures, remarked that strictures of the female urethra were on a par with Hunner's stricture of the ureter; that the number in his opinion was much overestimated. Fortunately, urologists as well as gynecologists are now paying more attention to this condition. The urethra in the female contains numerous glands. Infection of these glands and their ducts is often responsible for the persistence of urethritis. While some of the patients are cured by conservative treatment, such as dilation of the urethra, instillations and applications, many of them require destruction of the gland before the urethritis will disappear. I saw a patient sent in some time ago with a diagnosis of either tumor of the bladder or cyst of the ovary. She had passed very little urine during the previous week and comparatively none for forty-eight hours. The tumor disappeared following catheterization of a distended bladder, which was due to a tight stricture of the urethra.

Dr. H. Dawson Furniss, New York: Dr. Folsom has done a fine piece of work in bringing before the section the importance of the urethra in disturbances of the female urogenital tract. I do not believe the gynecologists are entirely to blame. I think the majority of urinary tract disturbances are due to the trouble in the urethra itself. One sees these patients with all kinds of disturbances, especially frequency of urination. They urinate every few minutes all day, and sleep all night without voiding. There is another type that I call urethral crisis. Without any rhyme or reason, these patients will have attacks of pain lasting for a few hours or a few days, and one cannot find the cause. The men who were trained in Kelly's hospital I think have been well trained in the use of the air cystoscope. I think the Kelly cystoscope is the best aid in clearing up these cases. Of the water cystoscopes I think the Gerringer best. Even with both of these I think one misses many of the small urethral diverticula, in the investigation. I recall one case in which only after a prolonged search was I able to find the opening. In three instances I was able to show up the diverticulum by injecting a radiopaque substance into the urethra, inserting a dental film into the vagina, and roentgenographing. We have had altogether about six cases of these urethral diverticula. I would caution against attempting to dissect these out from the vaginal side, for one is likely to damage not only the urethra but also the vesical sphincter. I think they should be opened up with an electrical knife and when they are contracted down to a small sinus they can be closed by a plastic procedure. Dr. Folsom spoke of the glands in the female urethra. In the last issue of the *Zeitschrift für Urologie* there is an article in which these glands in the posterior urethra are said to be similar to those found in the prostate; that they are analogues of those. I think one should pay more attention to the urethra in the female, and if one does so one will have far greater success.

Dr. A. E. Bothe, Philadelphia: To me the majority of the photomicrographs presented do not show glandular structures. I think they are typical transitional epithelium inclusions secondary to an inflammatory process. It has been shown that inflammatory changes in the bladder may result in transitional epithelium inclusions or "epithelial rests," which may undergo centralized liquefaction necrosis and result in a gland-appearing structure. These have been called by some observers von Brunn's glands. Morse's publication in the *American Journal of Pathology* in January, 1928, shows conclusively that glandular structures are not normally found in the urinary tract above the trigon of the bladder, but that the glandular appearing lesions are formed by degeneration of the central cells of the transitional epithelial cell nests. I feel that Dr. Folsom is dealing with the same conditions in the posterior urethra. These structures are epithelial inclusions with or without centralized liquefaction necrosis and the entity might be called a urethritis cystica.

Dr. Bransford Lewis, St. Louis: This is a distinct step in advance in urology, which will assist in bringing to its own the importance of pathologic changes of the urethra in women. Such changes have led to many cases clinically encountered in which there is a perpetuation of the symptoms Dr. Folsom has mentioned. I have been impressed for fifteen years or more with the importance of the urethra as the leading feature in the pathologic changes of urinary irritations that are so frequently ascribed to the upper urinary tract. Dr. Folsom has led me in his pathology and clear demonstration of the glands that stand between the clinical evidences of stricture of the urethra and its chronic irritation. If his ideas are established, and I am willing to admit them at present, I think it represents a distinct step in the pathology as well as the mode of treatment of these cases.

Dr. Robert Gutierrez, New York: I believe Dr. Folsom's paper is a distinct contribution to urology. I recall two cases in which frequency and complete retention of urine were the principal symptoms in cases in which no neurologic lesion or any other pathologic change could be detected and in which on cystoscopy and complete urologic examination, including bilateral pyelograms, no other pathologic condition was found than marked elevation of the floor of the bladder neck, which in my mind corresponds with the hypertrophy of the Albarran subcervical group of glands described in the male. In other words, we are seeing in the female what the French school described so many years ago in the male, the so-called prostatism without prostate. In looking up the literature I have found these glands plainly described by Albarran in his textbook on tumors of the bladder and we have also found the presence of these glands in histologic sections of cadavers. To my mind these glands of the female urethra and bladder neck are similar to those described by him in the male. They extend into the trigon underlying the submucosa and in some instances they develop, to the extent of forming a true microscopic adenoma producing mechanical obstruction to urination. This hypertrophy of Albarran's glands should not be confused with contracture or fibrosis of the bladder neck or with the formation of polyp cyst and edema so commonly observed. These glands have been described by many authors after Albarran, and, as infection of the Cowper glands and Littré glands of the male urethra are called cowperitis and littritis, I believe that these Albarran glands of the female urethra constitute a definite entity clinically and pathologically, and as this condition is rather common, it should be better known in the future as albarranitis or hypertrophy of the Albarran glands in the female.

Dr. J. Dellinger Barney, Boston: While not a gynecologist, I have seen many of these cases that have been referred for this condition with diagnoses varying from stone in the bladder, cystitis and so on. Examination often shows nothing very definite on first sight. I think we often lose sight of the fact that the cystoscope may be a little tight on introduction, and put it down as not of importance; but I believe a careful study of these cases will enable us to lay more stress on the tightness of the urethra to instrumentation. Most of the cases I have seen have been in rather elderly women, and in addition to the glandular element we have the condition of fibrosis, and I know of nothing better to name it than a senile change. The uterus is atrophic, the introitus is atrophic, and the urethra shares in this. While the condition is distressing, I have found that it can be relieved by dilation and overdilation, using an anesthetic if necessary. I think, while they are not curable in one sitting, they can be relieved by persistent dilation, together with applications of silver nitrate, and possibly of the electric cautery. I think the subject has been much neglected, and we are indebted to Dr. Folsom for bringing our attention to it.

Dr. Clyde W. Collings, New York: The treatment of these lesions of the female urethra particularly interests me. It is always surprising to find a very small lesion giving rise to so many symptoms. With the cysto-urethroscope, small exuberant granulations are often seen in the urethra. I have been successful in treating these lesions with surgical diathermy. A stiff, blunt tipped electrode is used, touching the little granulations very lightly. They burst much as a puffball would; in a few weeks, accompanied by dilations, the patient's suffering is relieved.

Dr. William P. Herbst, Minneapolis: One of the most important phases of this subject is a consideration of the causes of unsatisfactory response to treatment. This lack of response is due to one of two reasons: first, that the chronic inflammation in the wall of the urethra does not subside with the usual local procedures such as dilation and instillations with or without clearing up other foci; second, the presence of coexisting pathologic changes, such as panmural inflammation of the bladder wall, called Hunner's ulcer because of his original descriptive contributions, and inflammation of the same type involving the lower end of the ureters. I wish to suggest that these cases of chronic urethritis, which do not respond to the usual local treatment, be carefully investigated as to focal infection and lesions in the bladder and ureteral walls.

Dr. B. S. Barringer, New York: I remember many cases similar to those described in which with the patient under a general anesthetic a urologist of my acquaintance dilated the urethra and then with the fingers of the right hand, especially the index finger, he manipulated the parts vigorously. I always wondered why the patients did not have incontinence afterward, but, surprising to say, they would not. They were cured by one simple manual dilation with the index finger.

Dr. G. H. Hansmann, Iowa City: It is unnecessary to have glands in the urethra to explain the type of pathologic change presented. The condition of pyelitis et ureteritis cystica, which results from the submerged epithelium occurring in very low grade inflammations of the extrarenal urinary system, is well known. I can match even the sections which appear most like glands in sections presented with sections of this condition. Epithelium will change that much under pathologic conditions. I wish to ask whether glands have been overlooked in the pelvis of the kidney, the ureter, and even in the bladder. The same type of pathologic condition occurs throughout the extrarenal urinary system.

Dr. A. I. Folsom, Dallas Texas: I have never been able to get Dr. Bothe to say whether these are or are not glands. He has always been indefinite in his expressions. I think it will take a lot of time and work to determine whether these are really glands or whether they are epithelial inclusions. I have confidence in the pathologist who has been associated with me in this and he says they are glands, and so have several others who have seen the material in the Scientific Exhibit. The thing hooks up clinically, and the abstract things will have to be decided by some one else. The clinical facts are correlated. I have always been puzzled as to why so many more girl babies have pyelitis than boys, as have most of us. If these are glands I think there is a satisfactory explanation of this fact, because the female urethra is so small, with its open funnel end bathed with feces and urine in its short course, that the infection, if the glands are there, can easily get into them, and after the glands are infected they tend to remain infected. I have noticed, and rather imagine that many would corroborate this from a clinical point of view, that many of these children are presented with a perfectly classic case of pyelitis. On cystoscopy I have found the bladder urine loaded with pus. I have catheterized both kidneys, and the urine has been completely negative, with no pus at all. At first I did not know what it meant, but the next day the child was better. What I now think happened was that the child did not have an acute pyelitis but an acute posterior urethritis, an acute inflammatory reaction in these little ducts or glands, and the passage of the cystoscope promoted drainage so that the child got better clinically. This looks to me as if it might be the explanation.

Legislative or Restrictive Measures.—I think that I express the opinion of the practitioners of this country when I say that the medical profession should be spared from further legislative or restrictive measures. We already have our narcotic acts, prohibition legislation, rules and regulations for quarantine and endless laws to control us in the conduct of our professional activities. We do not need more. Nor should the medical profession be further standardized or rubber-stamped. An educated profession will render efficient service if permitted to exercise its skill and individuality.—Abt, I. A.: The American Academy of Pediatrics: Its Aim and Its Scope, *Am. J. Dis. Child.* **42:**875 (Oct., pt. 1) 1931.

SQUAMOUS CELL CARCINOMA OF THE ORBIT

A PROBABLE METAMORPHOSIS OF AN ADAMANTINOMA

CHAIRMAN'S ADDRESS *

GEORGE FRANCIS SUKER, M.D.
CHICAGO

The adamantinoma as such is not a very rare tumor. It occurs most frequently in the upper jaw or antrum. It is either a solid or a cystic growth. Many times it has a structure resembling a gland—then designated adenoma adamantinum or epithelioma adamantinum. It develops from the paradental epithelial remains of the enamel organ which springs from the adamantoblast. Any tumor arising from this blast is called an adamantoblastoma.

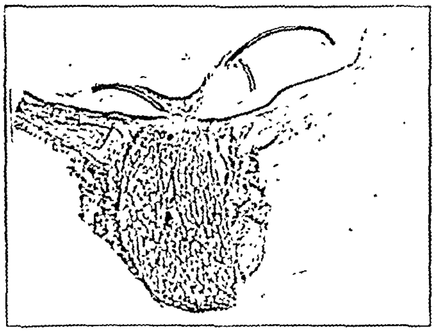

Fig. 1.—Moderate papilledema and edematous nerve.

Adamantinomas frequently develop from old roots or snags and are relatively benign, unless they undergo metamorphologic changes. Their structure is a fibrillary spindle cell network with many proliferations from these cells. Often the cellular structure is not unlike a carcinoma or even a gland.

A close inspection of these epithelial cells shows a close relationship to the early embryonal enamel cell, in its very incipient stages of development. The outer cells are highly cylindric, the next layers are polygonal flat epithelial cells. Eventually these polygonal cells may undergo cystic degeneration and by confluence form larger cysts. These cysts are then usually surrounded only by the cylindric cells. In such instances the picture closely resembles glandular structure.

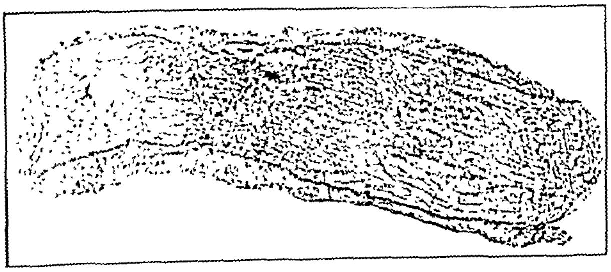

Fig. 2.—Remaining portion of orbital optic nerve, extremely edematous.

The more unusual type is the solid form such as is the case herein reported, and is so interpreted by the pathologist, Prof. Richard Jaffe of the Cook County Hospital, Chicago.

From the upper jaw or antrum they can extend into the nose, the adjacent sinuses or orbit. The oral surgeon sees them quite frequently; not so the ophthalmic surgeon. Occasionally these adamantinomas undergo metamorphologic changes which eventuate into a carcinoma of the squamous type. Such a change has likely happened in this particular tumor, and it has therefore been so designated and interpreted.

The question arises. How did this tumor reach the orbit? The patient had no dental roots or snags. Though the right antrum was cloudy, at the time of operation no perforation was found; but it was explored, revealing only a thickened mucous membrane but no tumor mass. However, just back of the sphenoid fissure and optic canal the roentgenogram shows a suspicious shadow, which may be a tumor mass. Did it develop just back of the sphenoidal fissure and then enter the orbit by way of the sphenoidal fissure or vice versa? Then, too, as to the ontogeny of primary orbital tumors, especially the mixed type, I am inclined to the view that they all may originate from an anlage; a like view is held by Kundrat.

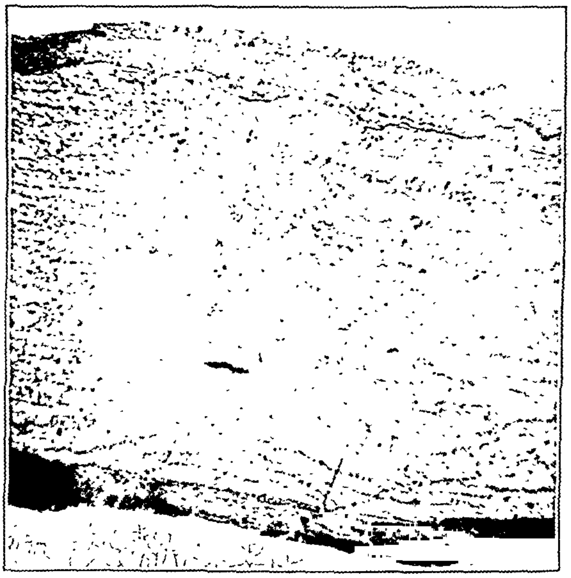

Fig. 3.—Section of optic nerve showing the enormous edema.

These bizarre metamorphologic adamantinomas develop most often in later life with no sexual predominance, are of rather slow growth, and frequently infiltrate and cause early metastases, local or distant.

The patient whose case is to be reported has had no dental pathologic changes and many teeth were removed years ago. Roentgenograms at present do not reveal any dental or mandibular tumor, hence it is reasonably concluded that in this particular instance the tumor originated from an anlage. Now how did this anlage get into the orbit or into the position posterior to the sphenoidal fissure, if this shadow cited is a tumor mass? No definite course of embryologic development can be given. The conjecture is that during the development of the denture, antrum and orbit, an ameloblast cell or cells missed their correct route and underwent early metamorphologic changes, developing themselves into a squamous cell carcinoma.

The microscopic examination of this tumor made by Prof. Richard Jaffe was reported as follows:

> Embedded with a dense fibrillar connective tissue are small branched and anastomosing alveoli which are composed of

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* Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

spindle shaped and oval cells with a scanty cytoplasm and oval nuclei rich in chromatin. In some places, the cells fuse together into larger multinucleated protoplasmic masses, the nuclei of which are lighter than those of the single cells. An occasional alveolus shows a central area of loosening, the cells becoming separated by unstained spaces and assuming an irregular stellate shape. There are a moderate number of mitotic figures with short and clumsy chromosomes. The stroma contains slender trabeculae of osteoid tissue arranged about small central spiculae of osteoid tissue. Diagnosis, squamous cell carcinoma.

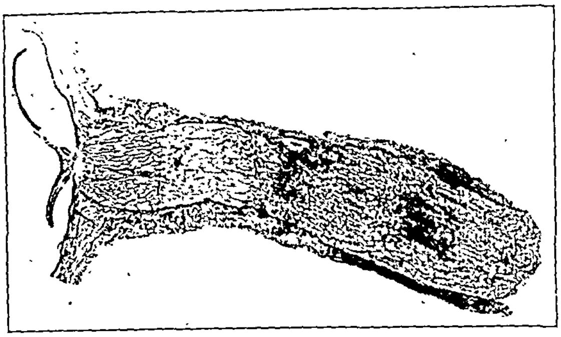

Fig. 4.—Reconstructed nerve (figs. 1 and 2).

This report is apparently in full accord with the statement of Ewing that epithelial cells of these tumors exhibit all variations in form between stratified squamous epithelioma and specialized adult ameloblast. Ewing further remarks that in spite of the benign structure of these cells the prognosis is unfavorable, an opinion shared by Jaffe.

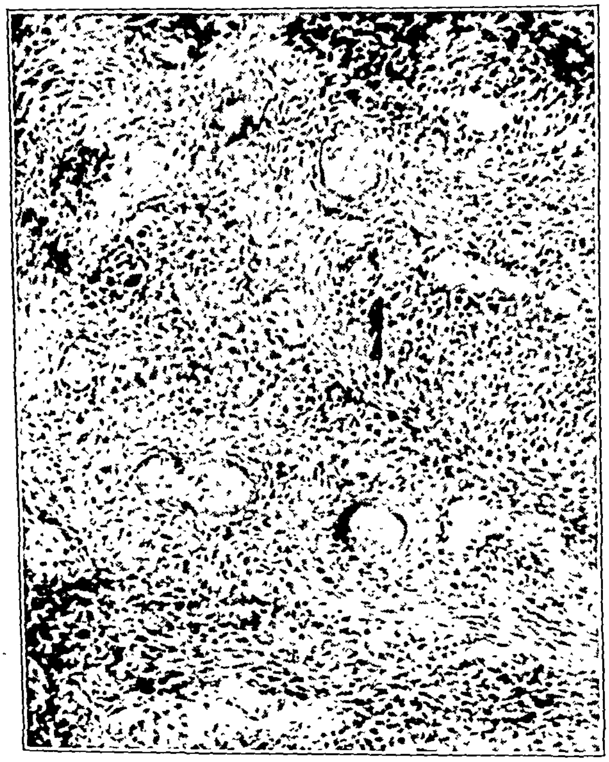

Fig. 5.—General structure of tumor invading bone; slightly reduced from a photomicrograph with a magnification of 145 diameters.

A careful search of the literature fails to cite any instance comparable to this particular case. Mention is made of such tumors invading the orbit from the antrum but not invading the orbit by way of an anlage supposedly situated as this one. None of the ophthalmic pathologies cite a case, though they casually mention the term adamantinoma. Not even in Sattler's "Bösartigen Geschwülste des Auges" is this type of tumor discussed. Sir Henry Parsons makes no mention of this type of tumor. Kaufman in his "Spezielle Pathologische Anatomie" gives a good description of adamantinoma but makes no mention of a case involving the orbit as a supposedly primary tumor. Erdheim[1] speaks of an adamantinoma of the stalk of the hypophysis which underwent metamorphologic changes, producing the picture of a squamous carcinoma. James Ewing[2] shows a photomicrograph of an epidermoid carcinoma which eventuated from an adamantinoma and in structure is almost a counterpart of the tumor herein cited. No similar case is found in the survey of the first and second editions of the Surgeon General's Index Catalogue or in the *Zentralblatt für die gesamte Ophthalmologie*.

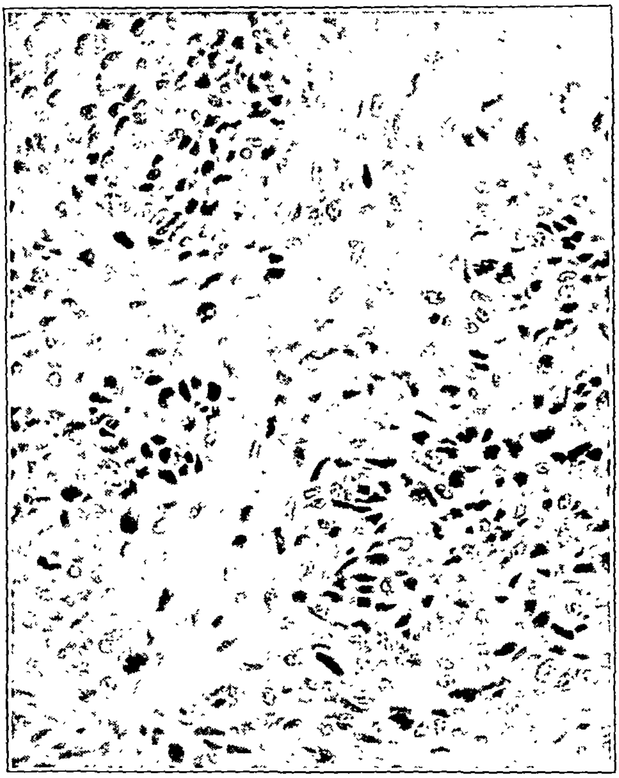

Fig. 6.—Structure of tumor cells and alveoli; slightly reduced from a photomicrograph with a magnification of 325 diameters.

It is not so improbable that there have been similar or like cases, but they may have been mistaken for other types of tumor because they had osteoid changes or degeneration; or, as they often resemble adenomas, they may have been taken for cylindromas arising from the orbital lacrimal gland, or for fibrosarcomas, with bony changes, or even for epulis.

At all events, there is some justification in assuming that this case is the first of its kind reported. If it is not, then I have failed in finding the specific reference in the literature, or have not, even with the aid of Dr. Jaffe, correctly interpreted the tumor, and hence a correction is earnestly solicited on my part.

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1. Erdheim: Sitzungsb. d. k. Akad. d. Wissensch. **113**.
2. Ewing, James: Neoplastic Diseases, p. 755.

The nearest description of a tumor resembling this one is by Fleming and Parsons.[3] They describe a myeloid sarcoma. In some particulars this tumor has the structure of a scirrhous carcinoma, which latter is not infrequently some type of endothelioma of the orbit.

The following is a brief history of the case:

Mrs. J. W., aged 60, white, whose history had been uneventful until two years before, when a goiter operation was performed, developed a moderate right sided partial facial paralysis (peripheral Bell's palsy), with no lagophthalmos, Feb. 5, 1931, from which she had nicely recovered. The blood pressure was 170. The kidney and heart were normal. A week later right exophthalmos, rather proptosis, developed and vision in the right eye failed rapidly to faint fingers at a foot. The patient had no pain at any time. March 5 there was a proptosis of 10 mm. The globe was immobile with no conjunctiva or edema of the lid. The globe was not the least compressible into the orbit; the external eye was normal; the iris was practically immobile, 3 mm. high; the fundus was normal except for a papilledema of about 6 diopters; the fundus vessels were engorged. A serologic examination was negative. No mental or brain symptoms or physical conditions were observed. Roentgenograms of the sinuses were negative except for a slight shadow in the right maxillary antrum, but a suspicious mass was observed back of the orbit. Many teeth had been removed several years before. A roentgenogram showed no impacted molars, only a few roots.

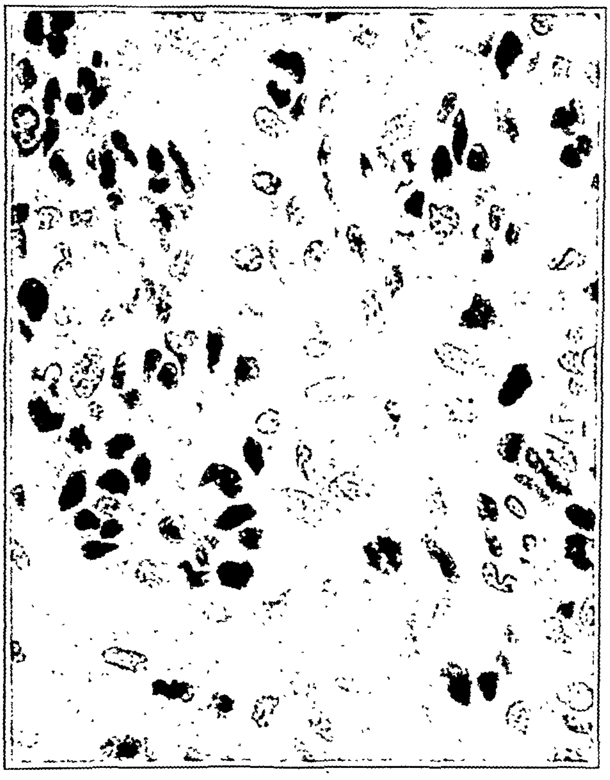
Fig. 7.—Tumor cells and stroma; slightly reduced from a photomicrograph with a magnification of 675 diameters.

A tentative diagnosis of orbital tumor, probably a sarcoma or fibroma, was made. Exploratory operation was advised to guide further procedure.

As the proptosis was marked, by tenotomy of the external rectus and opening into the Tenon's capsule a rather flat, dense mass was felt along the outer orbital wall, extending to the apex and swinging along the inner wall. A section of this mass was taken for a frozen section, and it proved to be a carcinoma of a peculiar type (Dr. Brown, Grant Hospital Laboratory). Under general anesthesia, a conservative enucleation was made. Then with the cautery knife the orbit was exenterated, both lids being saved in their fulness. The floor of the orbit over the antrum area was not perforated, but it was explored. The tumor mass was very firm, rather brittle and vascular. The tumor occupied the posterior third of the orbit, encircling the optic nerve, and spread along the apex circumference on top of the periosteum, to which it was rather firmly adherent. It was not encapsulated. The sphenoid fissure was seemingly enlarged in its inferior third and was apparently filled by the tumor mass. The optic nerve pierced the tumor and was very constricted just at the foramen, while its orbital section was exceedingly edematous. Finally, the apex of the orbit was thoroughly cauterized with the electric cautery. The culdesacs were sutured and the orbital cavity was rather firmly packed with petrolatum iodoform gauze, with a drain from the external canthus.

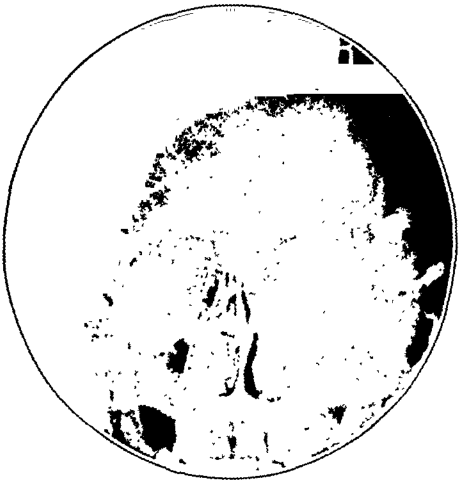
Fig. 8.—Anteroposterior view showing the suspicious conditions in the region of the posterior section of the right orbit.

Intensive high voltage roentgen therapy was given within twenty-four hours and repeated daily for six days.

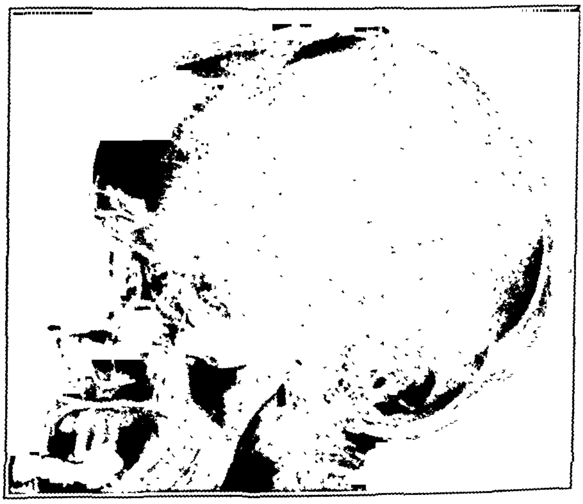
Fig. 9.—Lateral view, corroborating the observations in figure 8.

The patient made an uneventful recovery and has had two series of intensive roentgen treatments of five days each since the date of operation, which courses are to be repeated.

And now time will cast the verdict as to the immediate or future end-result.

Note.—In July there developed a mass in the right side of the abdomen which grew rapidly, the patient showing many of the cachectic symptoms so frequently associated with metastasis. There was also a local recurrence in the orbit.

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[3] Parsons, J. H.: The Pathology of the Eye 2: 740-741.

The patient died about August 15. A postmortem was not obtainable.

The rather rapid course of this tumor verifies again the extreme malignancy spoken of by Jaffe and Ewing.

25 East Washington Street.

PITUITARY THERAPY OF ALOPECIA

A PRELIMINARY REPORT *

BENGT NORMAN BENGTSON, M.D.
MAYWOOD, ILL.

Five years ago, while I was resident at the Research and Educational Hospital of the University of Illinois, a woman with Fröhlich's syndrome was treated with various pituitary preparations. During the treatment, she developed a luxuriant hair growth, in addition to regaining her normal sexual desires, reestablishing her menstrual cycle, and losing weight. The growth of hair was particularly remarkable in that the patient and her immediate female relatives (mother and two sisters) all had, since early youth, a scanty atrophic type of hair, prone to dryness and easy end-splitting.

Inferring a relationship of the pituitary therapy to this patient's hair growth and its change in texture, I began to study the effects of certain pituitary preparations in cases of alopecia and I am now in position to report on sixteen patients, in all of whom the results were so striking that a preliminary report seems desirable to render this treatment available for investigation by others, in spite of the relatively small number of cases.

It seems that coincidence could be ruled out by the uniform success in these sixteen patients, most of whom tried (one over a period of twenty-three years) various kinds of other treatments. The patients were taken in order of admittance and treated without preference or selection.

The results secured might be anticipated on theoretical consideration. An endocrine motor mechanism for the growth of hair must *a priori* be postulated, and, in view of the intimate association of the sex glands to the development of hair and of the pituitary to the sex glands, this mechanism might reasonably be looked for among these glands.

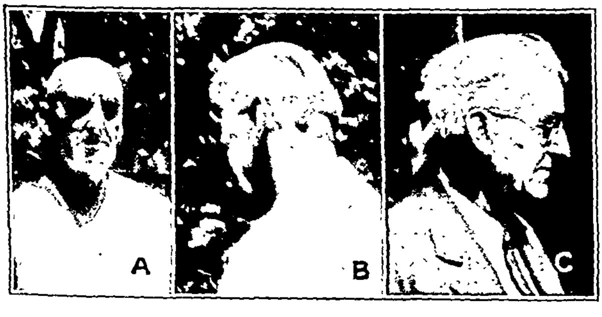

Fig. 1.—Appearance of patient 2: *A*, June 3, 1928; B, in September, 1928; *C*, June 1, 1931.

REPORT OF CASES

Case 1.—Mrs. L. G. B., aged 30, the mother of two children, complained of nervousness, frigidity, amenorrhea for four years, scanty, dry type of hair growth, which was prone to easy end-splitting, and progressive weight increase from 160 pounds (72.6 Kg.) in July, 1923, and 224½ pounds (102 Kg.) in June, 1926, to 238½ pounds (108 Kg.), Oct. 1, 1926. A mental fogginess and slow cerebration had been noted for the last two years and a moderate polyuria for the last six months. The Wassermann reaction was negative. Basal metabolism was minus 8. The blood pressure was 118 systolic and 68 diastolic. The urine was essentially normal except that the average quantity was 2,600 cc. for twenty-four hours. A roentgenogram of the sella turcica revealed an approximation of the anterior and posterior clinoid processes, but with depth, width and length comparing with Cushing's minimal requirements of 9 by 14 mm. A pituitary therapy was begun, Oct. 11, 1926, consisting of solution of 1 cc. of anterior pituitary by hypodermic injection twice a week; 1 cc. of solution of posterior pituitary, by hypodermic injection, once a week; whole pituitary by mouth, 0.5 Gm.. daily in three doses five days a week. Jan. 7, 1927, the patient weighed 214 pounds (97 Kg.); she was not so nervous and had a bloody show for two days. April 9, she weighed 194 pounds (88 Kg.), was not nervous, and had had one good and one poor period, August 18, she weighed 178 pounds (81 Kg.), was not nervous, and her last three periods were regular. There was no mental fog, and her hair was thicker and softer and not quite so dry and brittle. The blood pressure was 126 systolic and 68 diastolic. The urine output averaged 2,450 cc. December 20, the patient weighed 169¾ pounds (77 Kg.); there was no nervousness; she gave a normal sexual response; her periods were regular, but on a 30 to 33 day cycle, as compared to 25 to 28 days previous to disturbance. The hair was lustrous, soft and abundant. The basal metabolism was plus 4.

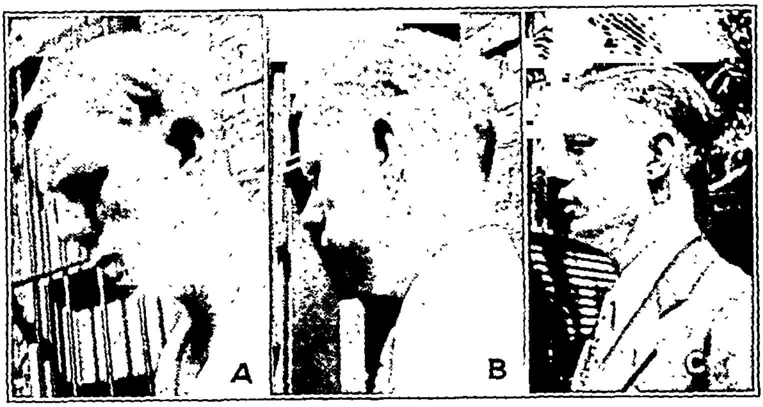

Fig. 2.—Appearance of patient 6: *A*, in June, 1929; *B*, in May, 1930; *C*, in August, 1931.

Case 2.—A. J. R., a man, aged 60, married, without children, stated that his baldness began in February, 1926, by a dropping out of the side and the top hair. He became totally bald during the succeeding three months. The eyelashes and eyebrows fell out gradually over a period of five weeks. His beard disappeared, so that shaving became unneccessary. Additional history revealed that the patient had had rheumatism for six years, and particularly for the last two years, especially in both knees. Headaches had been present for the last three years and were getting progressively more severe and frequent, with the feeling of a tight band about the head. At first the patient did nothing about the falling hair, thinking it due to his age; later he tried many nostrums and other treatments; he then sought medical aid. When seen the patient was entirely bald, without eyelashes, eyebrows or beard. The blood pressure was 150 systolic and 90 diastolic. The basal metabolism was plus 2. The urinalysis was essentially negative except for moderate amounts of indican. The weight was 168 pounds (76 Kg.). The family history was negative, the father, mother, sister and brothers all retaining their hair to the present or until they died from other causes. The same pituitary routine as in case 1 was begun, Feb. 3, 1928. There were no results until August 6, when a faint lanugo appeared on the crown and over the right temple. By September 12, the entire head was covered with lanugo except for two small areas over the left temple. Feb. 1, 1929, the first evidence of true white hair was observed; the headaches had completely disappeared and the patient has had no rheumatism for two months. By May 7, a full growth of hair was completely restored, except that the hair is now white as compared to jet black previous to the disturbance. The eyebrows, eyelashes and beard returned black. This was the oldest patient in the series and the only one in the case reported in which the returning hair did not eventually return to the original color.

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* From the University of Illinois College of Medicine.

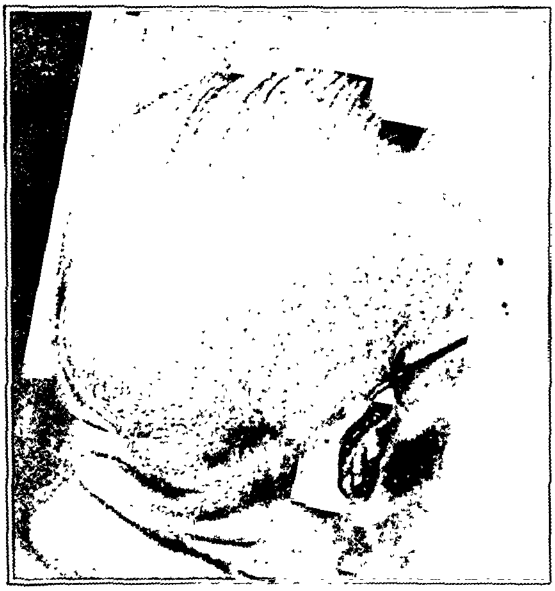

Fig. 3.—Appearance of patient 13, April 23, 1931.

Case 3.—E. A. L., a man, aged 18, single, a student, began to become bald in the summer of 1920, when his hair fell out in four patches and the baldness continued to develop increasingly larger areas. The patient was seen by four dermatologists and five other physicians from 1920 to 1925. As the patient became more bald in spite of treatments, he was taken to a well known clinic, where he spent six months in intensive treatment with the water cooled Kromeyer lamp and with thyroid orally. By this time the patient was completely bald and had lost his eyelashes and eyebrows. He was taken to Europe but was resigned to wearing a toupee on returning to America. Up to this time there had not been the slightest evidence of returning hair or of any follicular stimulation. When seen, April 15, 1928, he was completely bald. His personal history showed him to be erratic, emotional, easily aroused to anger, and a poor student. He was forced to change schools frequently because of his behavior. His father was of a mild acromegalic type and his mother and sister were of the hypo-ovarian type. A roentgenogram showed the sella turcica to be exceptionally small with the anterior and posterior clinoid processes almost touching. An endocrinologist examined the patient because of behavior peculiarities but found only a mild hypothyroidism present. An otolaryngologist examined the nose and throat and reported them normal. A dermatologist corroborated the diagnosis of alopecia areata. The basal metabolism was minus 2. The blood sugar before the administration of dextrose, was 120 mg.; one-half hour later it was 151 mg.; one hour later, 186 mg.; one and one-half hours later, 135 mg. two and one-half hours later, 130 mg. In the testing of vagotonia the pulse dropped from 80 to 68 with atropine and increased from 82 to 98 with palpitation when epinephrine was used. There were no appreciable differences with pilocarpine except the usual perspiration. Pituitary therapy was begun, April 15, 1928. The first lanugo was noted on three small areas by September 27, and by December 1, the entire head was covered with lanugo. By Feb. 7, 1929, the first true white hair was observed. He could not wear a wig at this time because it was uncomfortable. April 15, one year later, the entire calvarium was covered with true white hair, excepting the original patches of 1920, which had only a small amount of lanugo. September 10, the hair was changing from white to brown and the eyebrows and eyelashes were coming in; he had to shave twice a week as compared to his previous program of once every four to eight weeks. His weight increased from 145 pounds to 162 pounds (66 to 73.5 Kg.) in eighteen months. By Feb. 4, 1930, twenty-two months later, the hair was all in, the texture was good and it was all black, the eyelashes and eye brows were in and of normal color. Now he has to shave every other morning. He has become a good student (B grade) at an engineering school; he is emotionally better, and all his surliness is gone.

Case 8.—W. X. M., a man, aged 37, married, the father of five children, became bald after a drinking spree of five days' duration (1923), in a small spot over the left temple, increasing to the size of a half dollar (31 mm.) within a few weeks. The patient went to three physicians in as many weeks but, failing to see immediate results, he stopped further treatments. There was no change in the spot until the winter of 1924, when, after the patient had his nose and cheeks frostbitten, the spot enlarged to the size of a cup. The patient went to four or five physicians in rapid succession and to one naprapath, but the spot stayed 4 inches in diameter. The winter of 1928, the patient developed severe influenza; he was in bed for five weeks, delirious part of the time; he was sleepy the greater part of the beginning of this illness and had severe headaches which made him nauseated. No physician was called to see him because he was out of work and had no money. While he was convalescing the spot enlarged, this time so that the entire left side became denuded. When seen, Aug. 20, 1929, the patient's entire left side of the head was bald and shiny; the right half was of fair quality and red. There was no disturbance of the eyebrows or eyelashes. Heavy axillary pubic and chest hair was noted. There was powerful muscular development, the patient weighing 212 pounds (96 Kg.) with very little fat. The Wassermann reaction was four plus. The patient had had a primary chancre about twenty years before for which the only treatment had been cauterization, and later

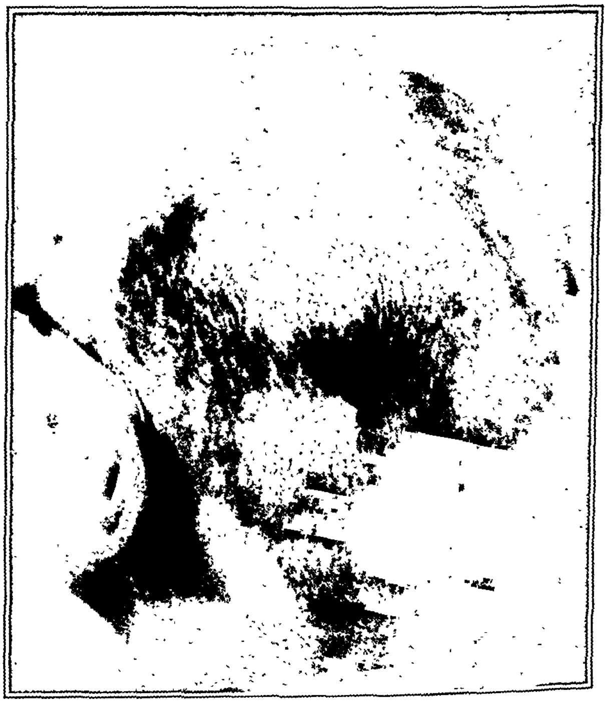

Fig. 4.—Appearance of patient 13, July 7, 1931.

some injections into the "skin" and some bitter medicine by mouth. Any other history was impossible to obtain because of the type of perverse patient under observation. Wishing to see the influence of pituitary on this type of baldness, I added no arsenicals to the treatment. November 1, a faint evidence of lanugo manifested itself over the entire bald area, with the exception of a small area near the mastoid the size of a quarter (25 mm.), within the space of two days (from one injection period to the next). By Feb. 19, 1930, true white hair and occasional reddish hairs were appearing. August 10, the hair was all in, reddish and hard to distinguish from the opposite side except that it was a shade lighter. The patient was then advised to come for antisyphilitic treatment but he never showed up.

This was the only Wassermann positive case in the series and the only one in which the lanugo appeared so completely over the entire denuded area within a few days.

present remains unanswered. The probable conclusion might be that the anterior lobe in the instance cited received synergistic aid from the other ductless gland extract.

In the series presented, pituitary was the only treatment that I used, without resorting to other aiding forms or types of recognized therapy. It is true that the cases treated fall into the category of glandular alopecias and whether any type of baldness would respond to this form of treatment is a question that remains to be answered only on further detailed investigation and study. I have recently begun a series of observations on patients with recessive, senile and constitutional baldnesses and will report the results obtained at a later date.

Summary of All Cases Under Observation

						Treatment and Dosage						
Case, Sex,* Age	Wassermann	Basal Rate	Associated Etiology	Age Hair Loss Began	Years Bald	Hypodermic Anterior Pituitary Extract	Oral Anterior Pituitary Extract	Posterior Pituitary Extract	Thyroid	Miscellaneous	Number of Injections	Results
1 ♀, 30	Neg.	— 8	Fröhlich syndrome	13	17	1 cc. once a week; later, twice weekly	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.3 Gm. daily	119	Excellent
2 ♂, 60	Neg.	+ 2	Senility and alopecia	53	2	1 cc. once weekly; later, twice weekly; then three times	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	146	Excellent
3 ♂, 18	Neg.	— 6	Alopecia areata	10	8	1 cc. three times weekly	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	260	Excellent
4 ♂, 27	Neg.	—18	Alopecia areata	21	6	1 cc. three times weekly	Whole pituitary 0.5 Gm. daily; 5 days a week	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	182	Excellent
5 ♀, 43	Neg.	Not taken	Fröhlich syndrome	27	16	1 cc. once weekly; later, twice weekly, then three times a week	0.3 Gm daily; later 0.5 Gm. daily; then 0.6 Gm. daily	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	100	Good
6 ♂, 24	Neg.	+ 6	Alopecia areata	23	½	1 cc. three times weekly; then four times weekly	0.5 Gm. daily; 5 days a week	0.5 cc. weekly, then 1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	220	Excellent
7 ♀, 29	Neg.	Not taken	Alopecia areata	7	22 years incomp. 10 years complete	1 cc. three times weekly; later, four times weekly	0.3 Gm. daily; later, 0.5 Gm. daily	1 cc. weekly	....	Post. pituitary 0.36 Gm. daily	140	Excellent
8 ♂, 37	++++	Not taken	Syphilis areata	31	6	1 cc. three times weekly; later, four times weekly	0.5 Gm. daily; 6 days a week	....	....	....	150	Excellent
9 ♂, 30	Neg.	+10	Alopecia areata	29	1	1 cc. four times weekly	0.5 Gm. daily; 6 days a week	....	0.1 Gm. daily, 5 days a week	....	188	Excellent
10 ♀, 8	Neg.	Not taken	Trauma	8	½	0.5 cc. three times weekly	0.15 Gm. daily; later, 0.3 Gm. daily	....	....	....	78	Good results
11 ♂, 19	Neg.	+ 8	Alopecia areata	18	½	2 cc. four times weekly	0.5 Gm. daily; later, 0.7 Gm. daily	....	....	....	120	Good; still under treatment
12 ♂, 28	Neg.	—14	Universal alopecia	12	16	1 cc. daily	0.5 Gm. daily; later, 0.7 Gm. daily	...	....	....	162	Fair; still under treatment
13 ♂, 47	Neg.	+ 4	Alopecia areata	46	1	1 cc. daily	0.7 Gm. daily	....	....	....	92	Excellent; still under treatment
14 ♀, 21	Neg.	+16	Alopecia areata	21	⅙	1 cc. daily	0.5 Gm. daily; 6 days a week	....	....	....	56	Excellent
15 ♂, 35	Neg.	— 2	Universal alopecia	12	23	2 cc. three times weekly; then, four times weekly; now, five times weekly	0.5 Gm. daily; then 0.7 Gm. daily	....	....	....	76	Good beginning still under treatment
16 ♂, 27	Neg.	—20	Alopecia areata	27	¼	2 cc. three times weekly; then, four times, now five times a week	0.7 Gm. daily	....	....	....	38	Excellent beginning; still under treatment

* In this column, ♂ denotes male; ♀, female.

COMMENT

In keeping with embryologic studies, the anterior lobe, which is an invagination of buccal ectoderm and glandular in structure, might conceivably be thought to exert some influence on such other ectodermal tissues as the hair follicles. While in most of the cases here reported the anterior lobe was apparently the guiding influence, in isolated instances (case 9) the anterior lobe did not seem able to stimulate the hair growth completely until thyroid was added.

Whether the result was obtained because of the addition or merely after it is a question that for the

It is interesting to note that cases 2, 6, 7, 12 and 14 gave histories of severe headaches that had previously been treated as chronic sinus or migraine unsuccessfully, but in every instance the patient became completely free from headaches on treatment with pituitary and patient 2, who had only moderate success in alleviating rheumatic arthritis symptoms with salicylates, also responded to pituitary therapy.

Additional observations were noted and are borne out by the accompanying chart. One is that increased dosage and frequency of injection apparently decreased the time factor in restoring lanugo and later hair growth. The time factor of the alopecia or the amount of area bald entered into the duration and the number of injections necessary to complete growth in these patients.

The weight increased in the patients that were thin and decreased in those overweight under treatment.

The blood pressure tended to rise in those below normal and decreased in those with hypertension. Rises of from 10 to 20 points observed in three cases following injections were, however, transient and lasted only five to six minutes.

The only untoward symptoms, as reported by the patients, were headache, in two, lasting from two to three minutes following a hypodermic; moderate cramping of the bowels, in one, which disappeared by the fifth injection; dizziness, in six, which would come on a few minutes after a hypodermic and last from one to eight minutes; flushing and a feeling of heat, in one, which lasted about five minutes and after the twentieth injection was no longer noticed.

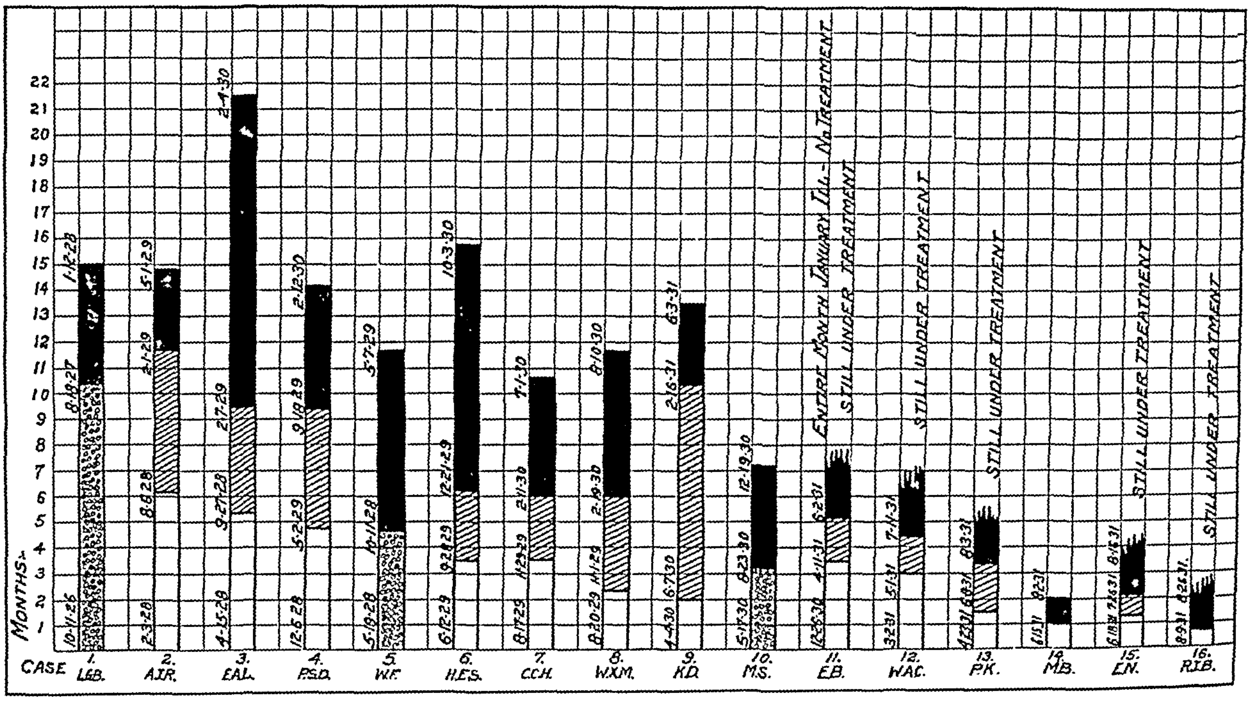

Fig. 5.—First appearance of lanugo and of hair, and total months of treatment: white area denotes baldness; stippled, scanty hair; shaded, lanugo; black, hair.

CONCLUSIONS

1. A definite therapeutic relationship seems established between certain alopecias and the pituitary gland preparations used.

2. The anterior lobe has, in most of the cases, been the sole influence in producing the growths of hair obtained.

3. The hypodermic use of pituitary gland has secured more satisfactory and more rapid hair growth than oral administration, which on the whole is disappointing. The combination of hypodermic injections in large doses (2 cc.) and oral administration has been found to give the most rapid response.

ADDENDUM

Since the preliminary report was submitted to The Journal, additional observations have been noted on alopecia prematura, circumscripta and seborrhoica, a freshly prepared extract of the anterior lobe of the hypophysis being used. While the new series of experiments are but six weeks under way, indications point to the probability that the common types of baldness apparently demonstrate greater primary stimulation of the hair follicle than did the areata and universal alopecias. Thus, a person with alopecia circumscripta since 1914, presenting the typical shiny crown and forehead, has grown definite lanugo and hair in four weeks on daily injections. Another, with premature alopecia, eighteen years since its beginning, has shown visible results in three weeks. Patient 2 of the first series, who developed white hair and was discharged, has started with the new injections and is growing black hair at 64 years of age.

Enthusiasm at this time is not warranted, and continued observations should be made until the merit or failure of this treatment is decided.

1603 South Seventh Avenue.

Something Physicists Cannot Measure.—The physiological interconnection between the different parts of the body is continuously in existence, and is far more intimate than is generally realized or assumed. In biology there is no such thing as purely mechanical determination. And, curiously, in the latest developments in pure physics, there has recently been discovered a new "law," the "principle of indeterminacy," which asserts (and here I quote from Professor Eddington's "Nature of the Physical World") that "measurements cannot reveal to us a unique sequence of cause and effect in the material world. That there is an element of what we can only call free will in the basic phenomena of nature." "Science has now withdrawn its moral opposition to free will. The future is a combination of the causal influences of the past, with unpredictable elements." "There is an indeterminacy of behavior which is part of the character of the atom." That is, physicists now apparently agree for the first time that they are up against something in the physical world which they cannot measure, and which therefore they cannot accurately predict.—Dickson, D. E.: Humility in Medicine, *Edinburgh M. J.*, **38**:530 (Sept.) 1931.

THE MAGNITUDE OF REGURGITATION WITH AORTIC LEAKS OF DIFFERENT SIZES

A REVIEW OF EXPERIMENTAL WORK [*]

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CLEVELAND

[Editorial Note.—This paper, together with the papers of Drs. Katz and Sutton, concludes the symposium on the heart and the circulation. The papers of Drs. Henderson, Eyster and Bazett were published last week.]

Since Corrigan in 1832 first described the typical pulse of aortic insufficiency and attributed its rapid collapse to diastolic backflow, clinical and laboratory investigators alike have attempted to evaluate the magnitude of the regurgitation in this condition. I have long maintained that crucial evidence of a considerable regurgitation has not been adduced and further that all the typical signs can be logically explained on the assumption that only a reasonably small regurgitation takes place. By this I mean a regurgitation volume equivalent to about 5 or 10 per cent of the systolic ejection, in contrast to the 50 or 60 per cent generally assumed by those who speak of a large, a considerable, a substantial or a significant regurgitation.

In this article I will restate briefly the defects in the experimental evidence which led to my contention and then present briefly recent experiments from my laboratory which make it necessary to abandon the view in the case of large leaks.

PHYSICAL EXPERIMENTS ON CIRCULATION MODELS

Artificial circulation models were first employed in the study of valvular lesions by Marey.[1] It can readily be demonstrated by such devices that aortic insufficiency causes only a moderate fall of systolic and a much greater fall of diastolic pressure (fig. 1 *A*). Pulses recorded from an artificial artery (fig. 1 *B* and *C*) show a considerable increase in amplitude and a change in basic form, consisting of a steep rise (water hammer characteristic) and a very rapid fall (collapse characteristic). Capillary and venous pulsations are demonstrable with ease, indicating that a central, not a peripheral, factor is concerned in the production of the capillary pulse. Measurement of the peripheral flow before and after a lesion shows that the total systolic discharge of the ventricles increases but that the net discharge and minute output decrease. This indicates that considerable regurgitation takes place.

While such experiments are valuable, particularly in laboratory instruction, it is questionable whether such observations can be transferred directly to hearts of animals and man for (*a*) the ratio between the size of the leak and the orifice is apt to be different; (*b*) the pressure relations are not the same, and actual values are of a different order of magnitude, and (*c*) the relaxation of a rubber bulb is unlike that of the muscular ventricle.

By means of an artificial device in which particular attention was directed to keep the size of orifices and leaks more nearly like those in the body, Allan[2] found that the net output is reduced from 55 to 60 per cent with leaks equaling from one-half to one-seventh the area of the orifice. The size of the leak, however, proved less important than the length of diastole or the heart rate. Levy[3] had previously reached similar conclusions on a mathematical basis. This is also supported by arterial pressure changes in artificial machines for, as shown in figure 1 *A*, no other agent is quite so effective in restoring diastolic pressure to or above normal levels.

EXPERIMENTS USING MEAN ARTERIAL BLOOD PRESSURE, VOLUMETRIC STUDIES OF THE VENTRICLES AND RECORDS OF LEFT VENTRICULAR PRESSURE

If considerable regurgitation obtains after sudden production of a lesion, the net discharge should decrease significantly, and this should produce a prompt and permanent fall of mean pressure in animals. Experiments reported by Rosenbach,[4] Cohnheim,[5] de Jager,[6] Kornfeld,[7] Goddard[8] and Karsner,[9] as well as numerous personal experiments, indicate that mean pressure either remains unaltered or, after an immediate moderate decline, rapidly returns to or above normal levels within five minutes or less. These variable and minimal effects are not surprising, in view of the fact that compensatory changes, such as increased tidal volume, accelerated rate and peripheral adjustments, occur immediately, though not always in the same combinations in different animals. Chiefly for these reasons, the method has contributed nothing to our solution of the problem.

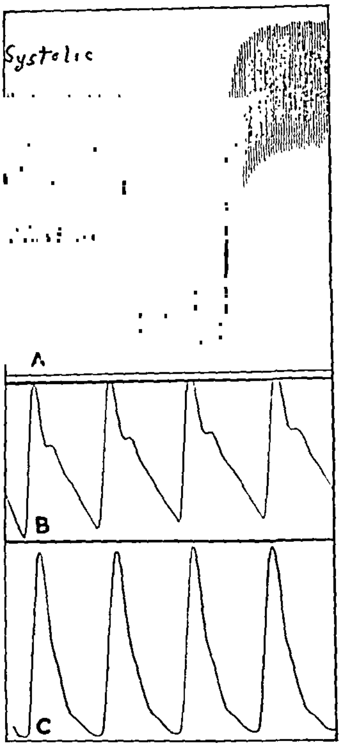

Fig. 1.—Effects of aortic insufficiency demonstrated by an artificial circulation machine: *A*, effects of lesion on systolic and diastolic pressures and compensatory effect of cardiac acceleration; *B* and *C*, changes in pulse contour. Note larger pulse amplitude and rapid decline after lesion in *C*.

The ventricles of experimental animals may be enclosed in a cardiometer and the changes in size during systole and diastole recorded by suitable apparatus. Stewart[10] employed this method and found that ventricular volume curves alter very little after rupture of the aortic cusps; hence he concluded that very little blood regurgitates. Zollinger,[11] a year later, reported an increased diastolic size but no change in the systolic discharge. His pulse curves do not display typical changes in contour, however. MacCallum[12] used a similar method on a heart connected in a perfusion system, in which the peripheral resistance supposedly remained constant. The diastolic size and stroke both increased. Since the peripheral outflow also diminshed, he concluded that a considerable portion of the systolic discharge must regurgitate. He failed to exclude the possibility, however, that this blood may have passed through the coronary system. Straub[13] reported similar experiments on a heart-lung preparation and concluded that 56 per cent of the blood ejected during systole regurgitates in diastole. The only cardiometer record published is not convincing, however. Recently Meek[14] has informed me that in the Wisconsin laboratories an increased diastolic volume and increased discharge have also been noted after insufficiency.

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[*] From the Physiology Laboratory, Western Reserve University.

[*] Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Marey, E. J.: La circulation du sang, Paris, 1883.
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3. Levy, B.: Ztschr. f. klin. Med. **31**: 321, 1897.
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10. Stewart, H. A.: Experimental and Clinical Investigations of the Pulse and Blood Pressure Changes in Aortic Insufficiency, Arch. Int. Med. **1**: 102 (Jan.) 1908.
11. Zollinger, F.: Arch. f. exper. Path. u. Pharmakol. **61**: 193, 1909.

Conclusions based on volumetric records of the two ventricles must, however, be accepted with due reserve and caution, for (1) slight dislocation of the cardiometer with reference to the ventricular base occurs more easily than it is avoided in experiments involving destruction of valves; (2) acute lesions are frequently accompanied by changes in heart rate which themselves affect both diastolic size and output, and (3) inferences as to what occurs in the left side of the heart can be drawn only with difficulty from records of both ventricles.

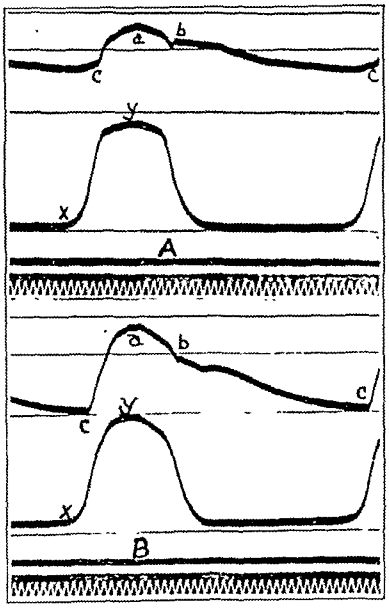

Fig. 2.—Aortic and left ventricular pressure changes following moderate experimental aortic insufficiency: *A*, normal; *B*, after insufficiency. Note low diastolic pressure (*c*), larger pulse pressure (*c, a*), greater systolic decline (*a-b*), and pronounced decline throughout diastole (*b-c*).

The advantage of studying pressure records from the left ventricle alone are therefore apparent. Marey[1] states that Chauveau produced experimental insufficiency in horses while recording intraventricular pressure. The curves reproduced by Marey are obviously greatly distorted by artefacts. Gerhardt,[15] in 1905, registered left ventricular pressure curves with a Hürthle membrane manometer. He did not find any alterations of diastolic pressure after a lesion or observe any change in the relaxation gradient. The systolic pressure, however, rose to higher levels.

In 1915, I[16] reported records made by the use of optical manometers. The records of figure 2 illustrate typical changes. The diastolic pressure (fig. 2 *x*) was raised somewhat and the pressure maximum (fig. 2 *y*) was greatly elevated. The curves show deviations in form which are accounted for by the reduced resistance against which blood is ejected. It appeared probable at the time that a significant backflow must affect the gradient of the descending limb; but not the slightest alteration was found. With these experiments began my belief that no considerable regurgitation occurs when the aortic valves are rendered insufficient.

FORM OF THE ARTERIAL PULSE AS EVIDENCE OF REGURGITATION

The rapid catacrotic decline common to arterial pulses recorded from circulation models, experimental animals and patients in which aortic insufficiency exists has tacitly been accepted as evidence for considerable regurgitation. For, if not due to regurgitation, how explain its occurrence?

Stewart[10] was the first to point out a serious difficulty; viz., the chief drop precedes the dicrotic wave in the peripheral pulse (fig. 3). From this he concluded that it must be systolic in time rather than diastolic, as is commonly taught. Subsequent improvements in methods of graphic registration, together with a clearer understanding of the physical changes involved in pulse form, have shown that this conclusion was not justifiable. I[17] found in 1914 that the diastolic gradient is much steeper and that this is chiefly responsible for the low diastolic pressure reached (fig. 2 *B*, *b-c*). Furthermore, the analyses of Frank[18] have shown that the end of systole does not correspond to the rise of the dicrotic wave of the *peripheral* pulse but coincides with an unrecognizable point on the catacrotic descent which precedes it (fig. 3). Nevertheless, as Lewis and Drury[19] point out, the decline of pressure previous to the apex of the v-shaped incisura of the *central* arterial pulse is steeper (figs. 2 and 3).

Hence an explanation of the so-called systolic collapse, which contributes to the total collapse, is required. Stewart interpreted the phenomenon as one due to reflex vasodilation which accompanies the lesion. That this is not the explanation was demonstrated by experiments[17] reported in 1914, for (1) the characteristic changes in the pressure pulses occur in the beat following a lesion; i. e., before reflex vasodilatation can possibly operate, and (2) the characteristic changes persist when this factor is eliminated by clamping the thoracic aorta.

It is only recently that the true significance of the systolic collapse has become apparent. While the higher systolic pressure contributes slightly, it is chiefly caused by a redistribution of the ejection volume and in such a way that a proportionately larger quantity is ejected during early systole and correspondingly smaller amounts during the latter portion of ejection. This is only indirectly a consequence of the aortic lesion; it is directly associated with the altered contraction following a rise of initial tension.

Since the chief collapse is a diastolic phenomenon in the aorta, how is it to be interpreted other than as a consequence of a considerable regurgitation? In 1923, I[20] ventured to suggest the possibility that a rapid and considerable loss of pressure from the arterial system might occur without a great regurgitation of blood. The following picture was drawn:

> Suppose a system consisting of two flasks, A and B, communicating by rigid tubing and a stop-cock, to be completely filled with fluid. Further suppose that the stop-cock is closed and that the fluid in flask A is placed under a pressure of 5 mm. Hg and that in flask B under the pressure of 150 mm. Hg. Upon opening the stop-cock, the pressure in the two flasks will

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[12] MacCallum, W. G.: Bull. Johns Hopkins Hosp. **22:** 197, 1911.

[13] Straub, H.: Deutsches Arch. f. klin. Med. **122:** 156, 1917.

[14] Meek, W. J.: Personal communication to the author.

[15] Gerhardt, D.: Kong. f. inn. Med., Wiesbaden **20:** 192, 1905.

[16] Wiggers, C. J.: Studies on the *Pathologic Physiology of the Heart*, Arch. Int. Med. **16:** 132 (July) 1915.

[17] Wiggers, C. J.: Proc. Soc. Exper. Biol. & Med. **11:** 55, 1914.

[18] Frank, O.: Sitzungsberichte der Gesellsch. f. Morphol. u. Physiol. in München **37:** 33, 1926.

[19] Lewis, T., and Drury, A. N.: Heart **10:** 301; 365 (Oct.) 1923.

[20] Wiggers, C. J.: *Circulation in Health and Disease*, ed. 2, Philadelphia, Lea & Febiger, 1923.

become equal, that in flask A rising, that in flask B falling. It is obvious that since both flasks are already filled with an incompressible liquid, no transfer of liquid can take place. If both flasks were partially distensible, then a small transfer of fluid could take place.

In other words, though differing emphatically from Stewart as to the fundamental cause of the changes in the pressure pulses, I was inclined to agree with him that the percental regurgitation is much less than is generally believed.

The validity of such a conception—regurgitation of pressure with regurgitation of only small quantities of liquid—appears to have presented incomprehensible difficulties in the minds of many colleagues and friends. The difficulty has been expressed by Gladstone[21] thus: In aortic insufficiency a decrease in aortic pressure cannot occur without significant regurgitation of blood, for "in an elastic musculomembranous distensible container one must introduce or withdraw considerable amounts of a fairly incompressible fluid to produce comparatively small changes of pressure." With this argument I am in complete agreement, the only question at issue being what percental regurgitation constitutes a "considerable amount." Is it 10 or 50 per cent of the systolic discharge? On this essential point Gladstone's analyses do not offer any new information.

My own observations and also those of others have thus failed to convince me that the diastolic collapse of the arterial pulse could be accounted for only by a very large backflow.

ROENTGENOGRAPHIC HEART SHADOWS AS CRITERIA

If experimental aortic insufficiency is accompanied by considerable regurgitation, it may be expected that the ventricular shadows determined by fluoroscopic or roentgenographic methods will increase immediately after production of a lesion. This is apparently not the case. Bazett[22] and Sands[23] carried out investigations in which it appeared that an immediate reduction of the x-ray shadow occurred, which they attributed to coincident cardiac acceleration. Herrmann[24] reported similar observations in many dogs, while in others the size remained unaltered. Enlarged areas occurred only as hypertrophy subsequently supervened. Eyster,[25] however, found earlier evidence of enlargement but apparently several days were required to make the increase very obvious. I have given considerable thought to the mathematical probabilities and fail to understand how they can possibly be interpreted as evidence that more than 10 per cent regurgitates.

But it is extremely possible that such methods may not demonstrate the entire increase in ventricular size which actually obtains, because (*a*) the production of an aortic insufficiency is generally accompanied by an increased heart rate which tends to reduce diastolic size; (*b*) the anterior-posterior enlargement of the ventricles may exceed their lateral expansion, and (*c*) considerable change in volume is required to increase the size of x-ray shadows enough to be reasonably convincing.

VOLUME FLOW AND VELOCITY CURVES AS CRITERIA

In experiments which it was my privilege to witness, Hewlett and Van Zwaluwenburg[26] recorded volume pulses of an arm by optical methods in clinical subjects with aortic regurgitation. Their curves are difficult to interpret otherwise than that a considerable backflow from the arteries of the arm toward the heart takes place; but there is no proof that all this is diastolic in time or that it actually flows back into the ventricle in corresponding amounts. It is not inconceivable that a considerable part of this blood could be accommodated in the central arteries or that it passes through the coronary system.

Lewis and Drury[19] attempted to solve the question of regurgitation in aortic insufficiency by studying the changes in arm flow for short periods of time before and after an arteriovenous fistula was compressed. They appear to have demonstrated that the arm flow increases about 50 per cent when an arteriovenous fistula is closed, and are probably correct in their conclusion that about half of the ejected blood is shunted through an arteriovenous circuit. But that "these observations finally lay at rest the controversy as to the amount of blood regurgitating in clinical aortic disease" cannot be admitted. It is rather probable that they contribute nothing to the solution of the problem. The weakness of the deductions lies not in the experimental results but rather in the premise that the two conditions correspond dynamically. In aortic leaks, the loss of blood from the arterial system occurs only during diastole; in arteriovenous fistula during systole as well. In valvular insufficiency the onward moving column must first be brought to a halt, then reversed; in arteriovenous fistula the outflow is directed with the current. In the first condition, backflow must occur into a closed cavity in which pressure is still relatively high. In the latter, blood enters the system against a low venous pressure and flows into

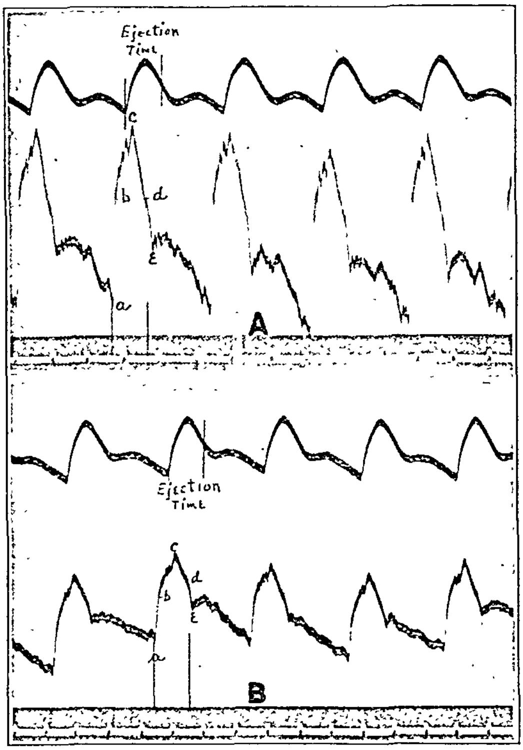

Fig. 3.—Radial (upper) and subclavian (lower) pulses from clinical cases of mild aortic insufficiency displaying collapsing characteristic on palpation. Note absence of collapsing characteristic in central pulse in lower set of records and relation of ejection phase to dicrotic wave in peripheral pulse.

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21. Gladstone, S. A.: Bull. Johns Hopkins Hosp. **44:** 83 (Feb.) 1929.
22. Bazett, H. C.: Am. J. Physiol. **72:** 201, 1925. Bazett, H. C., and Sands, J.: J. Clin. Investigation **3:** 65 (Oct.) 1926.
23. Sands, J.: Quart. J. Exper. Physiol. **215,** suppl., 1923.
24. Herrmann, G. R.: Am. Heart J. **1:** 485, 1926.
25. Eyster, J. A. E.: Am. J. Physiol. **81:** 473, 1927; Tr. A. Am. Phys. **42:** 15, 1927.
26. Hewlett, A. W., and Van Zwaluwenburg, J. G.: The Pulse Flow in the Brachial Artery, Arch. Int. Med. **12:** 18 (July) 1913.

readily expanding veins. All these differences are lightly waved aside by the statement that they do not matter, because the form of the arterial pulse and the pulse pressures are so strikingly similar in the two conditions.

To draw conclusions from a certain likeness of the pulse contour and arterial pressure relations in the two conditions is as dangerous as to accept "likeness" in two individuals as evidence of blood relationship. This is especially true when the likeness has reference to the peripheral pulse only. We now know, as a result of Frank's[18] careful analyses, that the central and peripheral pulses bear no great resemblance to each other, but, as shown in figure 4, the latter may develop a variety of forms in the same normal individual without any alteration of the central pulse form. This also accounts for the fact that there is no specific association between radial pulse form and aortic insufficiency; all types and varieties occur in different individuals with large aortic leaks or arteriovenous fistulas. The similarities of which Lewis and Drury speak are in fact merely palpatory delusions. Such are my reasons for doubting that the two conditions are directly comparable in the sense that Lewis and Drury proposed.

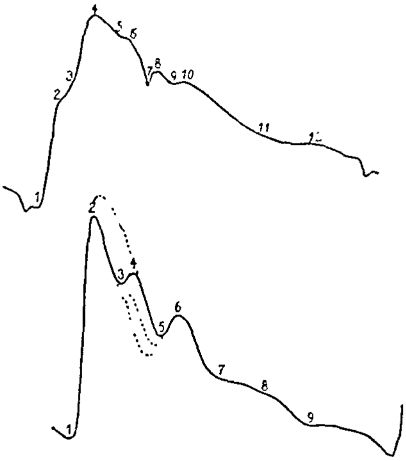

Fig. 4.—Central and peripheral pulse contours (after Frank) showing how form of the normal radial pulse can be modified by variable incidence if reflected waves are without occurrence of contour changes in central pulse.

More recently, Dock and O'Hara[27] attempted to throw light on the question by recording changes in the velocity flow within the aorta of experimental animals, by means of a modified hemodromograph. They concluded that after destruction of aortic valve leaflets there is a definite backflow. If it is admitted that their curves approximately depict the velocity changes, which is doubtful in view of Frank's recent critical analysis,[28] no evidence is presented that the rapid decline of the curve takes place during diastole. Similar records on animals, obtained in my laboratory by use of Broemser's differential sphygmograph, lead to the conclusion that it occurs during systole and therefore cannot be attributed to regurgitation.

THE SIGNIFICANCE OF THE DIASTOLIC MURMUR

Clinicians are prone to accept the presence of a diastolic murmur as sufficient evidence of considerable regurgitation, despite the general knowledge that murmurs may arise without significant regurgitation. There are many facts in connection with this well known murmur which could equally well be marshaled in favor of the view that comparatively little backflow of blood occurs. As a rule, the murmur consists of a short series of decreasing vibrations which replace the second sound. It is rare to have them extend far into diastole, as is the case in mitral stenosis. In other words, the murmur takes place during isometric relaxation while pressures are still high in the ventricle and no cavity has yet been created by muscular relaxation. It is absent during the remainder of diastole while the reduction of arterial pressures continues rapidly. It is obvious that no evidence in favor of a large regurgitation can be adduced from the character or time of the diastolic murmur.

In common with many clinicians and investigators, I have always had the feeling that aortic insufficiency should be accompanied by a rather considerable reflux of blood. However, my own investigations and also those of others, which I have endeavored to review critically yet sympathetically, have failed to convince me that crucial scientific evidence has hitherto been advanced in its favor. Occasionally, the experimental evidence appeared suggestive, but on careful consideration the results were susceptible of other interpretations. However, I realize fully a reviewer's difficulties in evaluating the experimental results of others, for it is not his privilege to share in the subtle and unreported tendencies of an investigation, which enter so largely into the conclusions which are drawn. By the actual performance of experiments, an intangible and undefinable vision is gained which often enables one not only to see the facts but to see through them. With reflections such as these, I determined several years ago to institute investigations again in my own laboratory and, as far as possible, by methods that hitherto had not been employed.

RECENT CONTRIBUTIONS

My associates and I first set out to determine the maximal regurgitation possible under the most favorable conditions; i. e., when the aortic orifice was practically patent, when the aorta contained sufficient fluid and pressure to fill the ventricle within 0.3 second, but when filling could occur simultaneously from the auricle under low pressure. Physical experiments on dead hearts soon convinced us that the problem could not be solved unless the heart was beating. In association with Dr. Green,[29] a special apparatus was designed by means of which a cat's heart was perfused in such a manner that the tidal volume entering and leaving the left ventricle by way of the mitral valves was separated by a thin membrane from the fluid regurgitating through the aortic valves. The changes in aortic pressure, the variations in tidal volume and the alterations in the volume of the heart itself were recorded by suitable optical methods. The difference between the tidal volume before and after a lesion offered an estimate of the quantity of regurgitating blood replacing natural filling from the auricles. The increase in the external size of the ventricle indicated the regurgitating volume accommodated by stretching of the ventricles. The two together gave the total regurgitation. Our results showed that under optimal conditions the total regurgitation can equal from 50 to 60 per cent of the tidal volume. We believe the percental regurgitation could not possibly exceed these values in intact hearts, though it might be considerably less. We further found that from 40 to 50 per cent is accommodated by preventing natural filling from the auricle and only 10 per cent by additional stretching of the left ventricle.

The question at once arose whether this might account to some extent for the small changes in ventricular size reported by other investigators. We accordingly investigated the immediate effects of an aortic leak on left auricular pressures. Optical tracings such as are shown in figure 5 demonstrated a slight elevation of the basal pressure level, but the consecutive waves showed no significant changes. Judging from the magnitude of the auricular pressure drop from *d* to *c* before and after a leak, it appeared that ventricular filling from the left auricle was slightly increased, not decreased, as a result of a leak. This occurred despite the fact that natural inflow did not commence (*d*) until aortic pressure had decreased very considerably. The conclusion is inescapable that the interference with natural filling found in the isotonically contracting cat heart does not obtain in intact hearts except possibly when free mitral regurgitation exists simultaneously.

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[27] Dock, W., and O'Hara, J. J.: Proc. Soc. Exper. Biol. & Med. **25**: 706-709 (May) 1928.

[28] Frank, O.: Ber. ü. d. ges. Physiol. **58**: 110, 1931; Ztschr. f. Biol. **90**: 181, 1930.

[29] Wiggers, C. J., and Green, Harold: Proc. Soc. Exper. Biol. & Med. **27**: 599 (March) 1930.

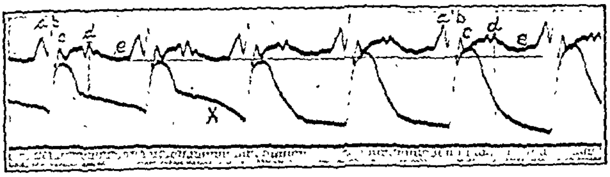

Fig. 5.—Left auricular (upper) and aortic (lower) pressure curves showing immediate effects of experimental lesion at *x*. Note comparatively slight elevation of basal auricular pressure indicated by line and slightly greater decline of pressure (*d-c*) during ventricular filling; *a*, auricular wave; *b* and *c*, ventricular impacts; *d*, beginning of ventricular filling.

Our experiments were next directed to ascertaining whether changes in ventricular size actually occur after production of an experimental lesion. After Strughold[30] under my direction had worked out the experimental technic of studying changes in ventricular size by means of moving pictures, Theisen, Williams and I[31] adapted the method to the study of aortic regurgitation. This method has several advantages over radiographic studies: 1. The heart rate can be controlled and kept constant. 2. The outline of the ventricles can be accurately determined by progressively enlarging and drawing each frame. 3. The size of the ventricle can be determined during successive intervals of 0.03 second, not merely at the end of diastole as in ordinary roentgen exposures. In seven experiments the diastolic size was not altered and the systolic discharge either remained the same or decreased slightly after an aortic insufficiency. Four of these experiments were disregarded on the basis of possible technical errors. In sixteen experiments the diastolic size and systolic discharge of the left ventricle increased from 16 to 58 per cent during aortic insufficiency.

While these experiments were presented as showing an average regurgitation of about 36 per cent of the systolic discharge, they showed considerable differences. It therefore became our next problem to discover the factors responsible. To do this, Miss Maltby and I[32] recorded optical pressure pulses from the left ventricle of dogs whose heart rate was kept slow and constant. Leaks of different sizes were produced by means of a newly designed valve spreader which enabled us to produce any size leak up to the full size of the aortic orifice. An analysis of the pressure curves convinced us that, contrary to previous opinions[33] the size of the leak chiefly determines both the actual and the percental regurgitation. This undoubtedly influenced our previous variable results more than we appreciated at the time and is probably also a reason why other investigations obtained variable effects on heart size. Tearing or cutting the cusps gives leaks of uncertain sizes but rarely causes maximal leaks comparable to severe clinical conditions. Our earlier trocar method was also found to produce greater variations than calculated, owing to misplacement of the instrument and occasional holding back of leaflets against the aortic wall.

Again, contrary to current belief, changes in heart rate, such as are likely to occur in patients, do not appreciably affect the volume of regurgitation when the leak is small, and not at all when it is large. Furthermore, we discovered that superimposed hypertension from peripheral constriction increases the actual volume of regurgitation but scarcely affects the percental regurgitation in relation to systolic discharge. In other words, the net discharge remains the same but the total discharge and work of the ventricles increase. This stresses the importance of considering both the actual and the percental reflux in evaluating the deleterious or beneficial effects of other agents or factors.

It still remained to clarify our knowledge as to the exact time of diastole at which maximal regurgitation occurs and to determine the degree of regurgitation during successive portions of diastole; e. g., during protodiastole, isometric relaxation, rapid filling from auricle, and diastasis. The aortic pressure curves are particularly suitable for such investigations. Continuing our investigations, Miss Maltby and I found that the greatest regurgitation takes place during the protodiastolic phase; i. e., at the very onset of diastole represented in the central pressure pulse by the incisura. This is the reason that the incisural V occupies a progressively lower position as the size of the leak increases. Incidentally, this is of practical importance in evaluating the size of the leak clinically. Feil[34] is reporting a similar relation between the depth of the incisural fall of pressure and the size of leaks found post mortem in clinical insufficiency due to different infections.

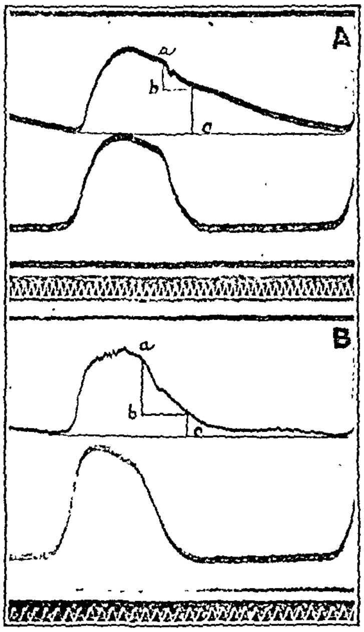

Fig. 6.—Aortic and ventricular pressure curves before (*A*) and after (*B*) large experimental insufficiency. Note extensive diastolic collapse (*a-b*) preceding ventricular filling from auricles and comparatively slight additional decline (*b-c*) during remainder of diastole. Contrast with effects of mild insufficiency shown in figure 2.

The distribution of the regurgitation during successive diastolic phases depends, however, on the size of the leak. Thus, we found that in small leaks 33 per cent of the comparatively small backflow happens during protodiastole and 67 per cent during the remainder of diastole. In extremely large leaks, 66 per cent of the relatively large regurgitating volume enters the ventricle before the auriculoventricular valves open. This is well shown in the curves of figure 6. Incidentally, these observations remove one of the obstacles to a complete acceptance of the view that a large regurgitation can occur, for the postulated competition between filling from the auricle and the aorta does not take place in large leaks, because the aortic blood gets there first.

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[30] Strughold, H.: Am. J. Physiol. **94**: 641 (Sept.) 1930.

[31] Wiggers, C. J.; Theisen, H., and Williams, H. A.: J. Clin. Investigation 9: 215 (Oct.) 1930.

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[33] Allan (footnote 2). Levy (footnote 3)

[34] Feil, H.: To be published.

It remained to explain the observations that the ventricular relaxation gradient does not alter despite the considerable backflow during protodiastole and isometric relaxation. We were forced to the conclusion that the ventricular relaxation gradient is neither determined nor affected by the entry of blood into the ventricle, but solely by its mode of contraction; i. e., whether loaded or after loaded. The unexpected discovery was made, however, that the ventricular pressure curve continues to maintain an afterloaded pattern unless extremely large leaks exist. Even partially functioning leaflets or fragments of valves can offer sufficient resistance to maintain an afterloaded type of contraction and relaxation.

Summarizing our present views, we may say that both the magnitude of the regurgitation and its distribution during successive phases of diastole are determined by the size of the leak. Undoubtedly there are many incipient cases of aortic insufficiency clinically in which the magnitude of the regurgitation is not great, but it is probable that in advanced stages of the disease a large reflux obtains. In the former, regurgitation predominates during the latter phases of diastole; in the latter, it happens chiefly during the initial period of relaxation. Between these extremes, all gradations occur.

Finally, it should not be without interest to a medical audience to learn that our recent studies give promise of supplying a method by which the size of the leak can be estimated in patients. The chief criterion is the steepness and depth of the incisural drop evidenced in optical records taken from the subclavian artery of man.

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RECENT ADVANCES IN THE INTERPRETATION OF THE ELECTROCARDIOGRAM *

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With the natural enthusiasm to employ to the full every newly invented instrument, there often occurs a tendency to put it to uses for which it is unfit. The electrocardiograph is one of the inventions that have been put to uses beyond their capacity by some physicians. For this reason it has been deemed advisable to discuss briefly, with the aid of a few diagrams, the elements of the theory of electrocardiography before discussing the place of the instrument in clinical medicine.

THE GENESIS OF TISSUE CURRENTS

There is now a large body of evidence to show that resting muscle cells, including those of the heart, are in a state of electrical polarization at their surfaces. The negative pole is on the inside and the positive pole is on the outside of the cell surface, the area of this bipole being the total cell surface.

The Injured Cell.—When two electrodes are placed on such a resting cell, no deflection can be detected by a galvanometer, the record obtained being a horizontal line, as illustrated in diagram 1 of figure 1. If one of the electrodes is placed on an injured region in which the polarized state has disappeared temporarily, a deflection will occur in the galvanometer. The new level will be maintained until the polarized state is restored in the injured area. The time record will show a horizontal line, which can be restored to its previous level by introducing an appropriate countercurrent in the circuit, as shown by diagram 2 of figure 1. The current of injury flows, and a difference of potential in the two electrodes is created because the negative charge on the inside of the cell surface is in free communication, by way of the injured region, with the positive charge on the outside of the cell surface.

The Genesis of the Monophasic Action Current.—If such an injured cell is stimulated and the recording electrodes are placed as before, one on an uninjured and the other on the injured region, a monophasic action current will be recorded, such as is depicted in diagram 3 of figure 1. The monophasic curve shows the changes occurring in the uninjured region. The abrupt rise of the curve results from the depolarization of this region as it is activated; the decline, which is more gradual than the rise, is due to the repolarization of this region. In the heart muscle the curve shows a protracted summit because the depolarized state continues for a time. The direction of the monophasic action current is determined by the side of the galvanometer into which the electrode on the uninjured region is led. For example, the monophasic curve in diagram 4 of figure 1 is the mirror image of the one in diagram 3, because the positions of the injured and uninjured areas have been reversed.

Genesis of the Diphasic Action Current.—The curve recorded from an activated uninjured cell is different from that of an activated injured one in that the action current in the former is diphasic instead of monophasic. The diphasic action current, as shown in diagram 5 of figure 1, has a larger and more angular initial phase than final phase. In the curve from the heart, the two phases are separated by an appreciable interval. The contour of the diphasic action current depends on the relative position of the stimulating and recording electrodes. For example, the diphasic action current obtained when the stimulating electrodes are applied at one end of the cell is the mirror image of that obtained when they are applied at the opposite end (fig. 1, diagram 5 *A* and *B*).

Each of the two electrodes used in obtaining the diphasic curve gives a monophasic curve opposite in direction to that given by the other. The diphasic curve is therefore the algebraic sum of the oppositely directed monophasic curves recorded by each electrode. The resultant curve depends on the differences in amplitude, contour and duration of the two monophasic curves and on the asynchronism of their onset. A few of the simpler combinations of two monophasic curves are shown in figure 2. If the two monophasic curves have the same contour, amplitude and duration, and start simultaneously, they will neutralize one another, since, as already mentioned, they are opposite in direction. As shown in diagram 1 of figure 2, no deflection will be recorded in the galvanometer. If the two monophasic curves have the same duration, amplitude and contour but start asynchronously, a diphasic curve will be recorded; viz., diagram 2 of figure 2. The direction of the diphasic curve will depend on which monophasic curve starts first; and the amplitude and span of its two

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[*] Aided by the Emil and Fanny Wedeles Fund of the Michael Reese Hospital for the Study of Diseases of the Heart and Circulation.

[*] From the Cardiovascular Laboratory, Department of Physiology, Nelson Morris Institute, and the Heart Station, Michael Reese Hospital.

[*] Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[*] Read before the Section on Pathology and Physiology, at the Eighty-Second Annual Session of the American Medical Association at Philadelphia, June 10, 1931.

phases will vary in the same direction as the asynchrony of the start of the two monophasic curves.

If the duration of the two monophasic curves is not the same, the final deflection of the diphasic curve will vary from the standard pattern. Thus it may be excessively deep or shallow. If the monophasic curve which starts later has the shorter duration, the final phase of the diphasic curve will be in the same direction as the initial phase, as illustrated by diagram 3 of figure 2.

Occasionally, monophasic curves are obtained with two recording electrodes on uninjured regions. This occurs if the two monophasic curves from the individual electrodes are synchronous, equal in duration but different in amplitude, as shown in diagram 4, figure 2.

GENESIS OF THE CURRENTS RECORDED BY INDIRECT LEADS

The foregoing exposition of the genesis of the diphasic action current obtained by direct leads applies also to the electrocardiogram obtained by indirect leads with certain reservations. In direct leads the greatest influence is exerted by the region beneath the electrodes; in indirect leads the disparity in influence of various regions is absent or minimized. Consequently, with indirect leads we deal not only with the changes in polarization of individual regions but also, and to a greater extent, with the spread of depolarization and repolarization throughout the heart. The record obtained in indirect leads is therefore to be regarded as the algebraic resultant of the electrical stresses occurring from moment to moment oriented in the direction of the lead employed. These stresses occur simultaneously in distant regions since the impulse invades these distant regions simultaneously. On this basis the active heart in situ can be considered as equivalent to an electric battery placed in a relatively large mass of a conducting medium, a battery which varies in potential and in the position of its poles during the cardiac cycle.

The conducting medium, the body, is not without influence on the current recorded by the galvanometer.

The resultant battery of the heart has been assumed for a long time to be determined by the geometric location and mass of the active and inactive regions. Recently, however, primarily as a result of the work of Lewis,[1] Craib,[2] and Wilson,[3] it has become clear that each electrical stress can be considered as a bipole at the junction of an active and an inactive region, with its positive pole in the polarized and its negative pole in the depolarized regions, and that this bipole advances with the spread of depolarization and repolarization. It is assumed that these bipoles can be summated to give the resultant battery. I[4] have already expressed my view as to the manner in which this is brought about.

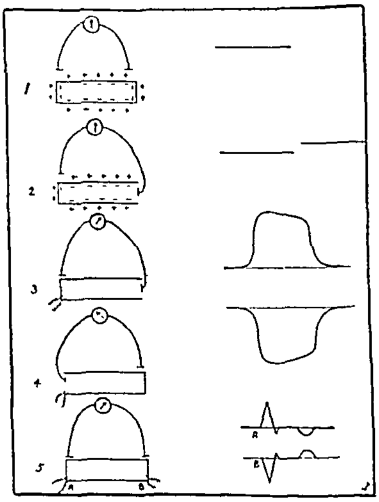

Fig. 1.—Genesis of tissue currents.

However, there has been a tendency to emphasize the direction of the bipoles and of their movements to the exclusion of their location. Figure 3 is a diagram illustrating the opposite effects obtained in a galvanometer when bipoles moving in the same direction are located differently in relation to the recording electrodes. The geometric distribution of the bipoles cannot be ignored in calculating the resultant battery of the heart; nor can the location of the resultant battery be ignored in analyzing its effect on the distant leads. Thus it cannot be assumed, as has been done by Wilson and others, that the resultant at any moment is simply a vector sum of the various bipole vectors present at that moment. Similarly, the effect of the resultant battery on the standard three leads cannot be so computed. The triangle formed by the three leads is not equilateral, nor is the resultant battery in the center of the triangle, as shown in diagram *E* of figure 4. As a matter of fact the heart is cephalad and to the left of the center of the body and nearest to the left arm electrode.

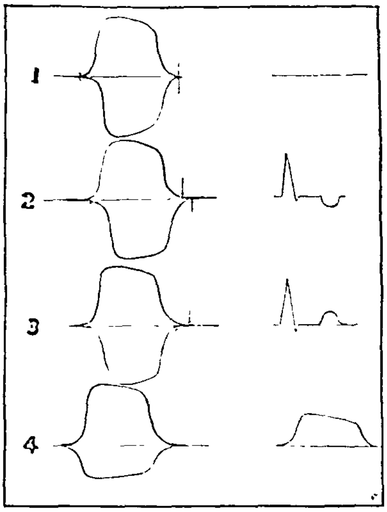

Fig. 2.—Simple combinations of monophasic curves.

In diagrams *E*, *F*, *G* and *H* of figure 4 are shown three of the four ways in which the resultant battery may change: 1. The battery may change its location in relation to the leads with a shift of the heart's position, as shown by comparing diagrams *E* and *F*. 2. The direction of the battery may be altered by rotation of the heart, as shown by comparing diagrams *E* and *G*. 3. The distance between the poles may vary, depending on the summation of the bipoles, as shown by comparing diagrams *E* and *H*. 4. The size of the poles and the magnitude of the vector may vary.

Furthermore, sight must not be lost of the fact that the three standard leads determine a plane, while the resultant battery has three dimensions. Thus, a change in the magnitude of the manifest "potential" in the frontal plane may be due to a change in the magnitude of the true "potential" (compare *A* and *B* of figure 4), or to a change in its angle in the anteroposterior plane (compare *A* and *C* of figure 4). An analysis of the changes in position of the heart is of the utmost importance in interpreting the recorded electrocardiogram, as this discussion has shown.

THE GENESIS OF THE DEFLECTIONS OF THE NORMAL ELECTROCARDIOGRAM

On the basis of the foregoing presentation, the genesis of the various waves of the electrocardiogram may now be briefly discussed. In figure 5 is shown diagramatically a transverse section of the heart together with an idealized electrocardiogram. The spatial relations of the normal spread of the impulse is shown by the diagram of the heart. The special cardiac tissue, viz., the sinus node, the auriculoventricular node, the common bundle, the bundle branches and their arborization are shown in black. The heavy arrows show the pathways of invasion of the auricles and the ventricles; the lighter arrows show the pathway of retreat. The electrocardiogram pictures the time relations of the spread of depolarization and repolarization in the normal heart. The P wave, the Q-R-S complex, and the T wave mark, respectively, the invasion of the auricles, the invasion of the ventricles, and the retreat of activity in the ventricles. The span of each of these complexes gives the time of invasion or retreat; the amplitude and contour give an expression of the unbalanced stresses from moment to moment during these periods. The fact that the T wave is upright in the normal electrocardiogram indicates that the duration of the depolarized state is not equal in all parts of the ventricle, so that the pathway of retreat is different from that of the invasion. The inversion of the T wave when the major deflection of Q-R-S is upright indicates either that the duration of the depolarized state in the various fractions of the heart has become more nearly equal or that the period of invasion has been prolonged sufficiently to nullify the unequal duration of activity.

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[1] Lewis, Thomas: Interpretations of the Initial Phases of the Electrocardiogram with Special Reference to the Theory of "Limited Potential Differences," Arch. Int. Med. **30**: 269 (Sept. 22) 1922.

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[3] Wilson, F. N.: The Distribution of the Potential Differences Produced by the Heart Beat Within the Body and at Its Surface, Am. Heart J. **5**: 509 (June) 1930.

[4] Katz, L. N.: The Significance of the T Wave in the Electrogram and Electrocardiogram, Physiol. Rev. **8**: 447 (Oct.) 1928.

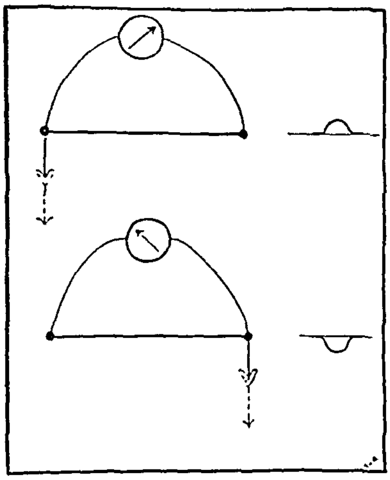

Fig. 3.—Location of bipoles moving in same direction determine galvanometer deflection.

The period from the end of P to the onset of Q-R-S is a period of retreat in the auricles; the presence of unbalanced electrical stresses ordinarily makes the level of this period deviate from the iso-electric. The P-R interval, from the beginning of P to the beginning of Q-R-S, marks the conduction interval from the sinus node to the ventricles. The S-T interval from the end of S to the beginning of T is a period of possession of the ventricle by the depolarized state. Some repolarization starts at this time, so that small deviations in the level of this period occur normally; large deviations, however, indicate that large regions of the ventricles fail to contribute their usual electrical stresses because of injury.

There is an erroneous impression, current among clinicians, that the electrocardiogram gives evidence of the magnitude of the heart's contraction. There is nothing in the electrocardiogram that gives directly any indication of the force of the heart or of its various chambers. The electrocardiogram is a record only of the site of impulse initiation and of the spread and retreat of activity in the sense of depolarization and repolarization; it detects the presence of freshly injured regions, but contraction per se makes no record. The magnitude of contraction of the ventricles is the summation of the magnitude of contraction of all the fractions, with little loss in summation, while the magnitude of the electrical deflections is the summation of the electrical stresses in these fractions, with a tremendous loss in summation.

PLACE OF THE ELECTROCARDIOGRAPH IN CLINICAL PRACTICE

What is the place of the electrocardiograph in clinical medicine? It is not, as some believe, the final authority on all ailments of the heart, nor is it, as others hold, an unpractical toy for the curious, an impressive hoodwink for the unscrupulous, or a good investment for the mercenary. The value of the electrocardiogram in elucidating the applied physiology of the heart in the last thirty years has been extraordinary. It is still useful in many ways in clinical medicine; viz., (1) in determining the nature of cardiac irregularities, (2) in estimating myocardial involvement, (3) in locating valvular or congenital lesions, and (4) in aiding the management of cardiac cases. Too much must not be expected from the electrocardiograph. While the electrocardiograph has a definite place in clinical practice, it cannot replace the customary methods of making a diagnosis, as some physicians have imagined.

Disturbances in Cardiac Mechanism.—The electrocardiogram is the final court of authority in cardiac irregularities. Many times, the diagnosis can be made by physical examination and by certain tests without any instrument. At other times the polygraph, which has undeservedly fallen out of favor, will make clear the nature of the irregularity. But certainty is possible only by employing the electrocardiograph; and even then, as in autopsies, the diagnosis may occasionally fail to be clear.

We are interested in determining the disturbance in cardiac mechanism, because the prognosis and management often depend on the nature of the disturbance. Thus the significance of extrasystole is different from that of auricular fibrillation. Under the same circumstances the latter is more likely to be serious, because experience has shown that it is less frequently present, in its chronic form, with normal than with diseased hearts. It is also more serious to have extrasystoles from many foci than from one or two, since the former condition is more often associated with disease of the heart and more apt to lead to fibrillation. Ventricular paroxysmal tachycardia is more serious than auricular

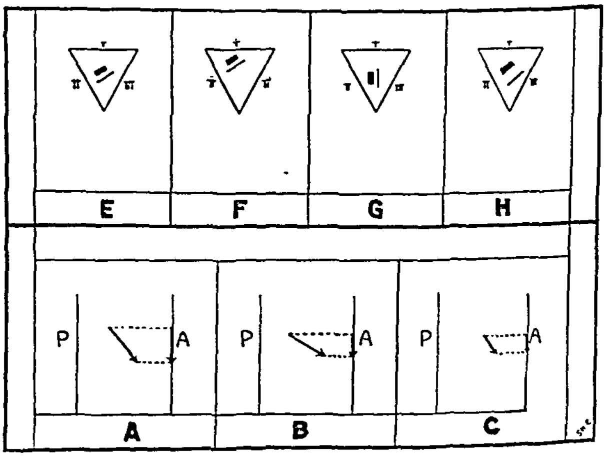

Fig. 4.—Influences affecting resultant battery and its frontal projection.

or nodal, since it is more apt to lead to ventricular fibrillation. It also causes a greater handicap to the circulation by making the heart beat less synergically and therefore less efficiently. More significant still is the difference in outlook between auricular fibrillation and sinus arrhythmia, or between either of these two and partial auriculoventricular block with dropped beats. In complete heart block the location of the idioventricular rhythm is important. If it is in the common bundle there is less likelihood of ultimate permanent cessation than if it is located in the arborization; and the differentiation can be made only with the electrocardiogram. The treatment of auricular fibrillation is different from that of partial heart block since quinidine and digitalis benefit the former and may be harmful in block in that they may cause complete block with its risks. It is difficult, often impossible, without the electrocardiogram to demonstrate partial block of the auriculoventricular type when this block consists of prolongation of the P-R interval. Complete auriculoventricular block, partial 2:1 auriculoventricular block, and sinus bradycardia often can be differentiated only with the electrocardiogram.

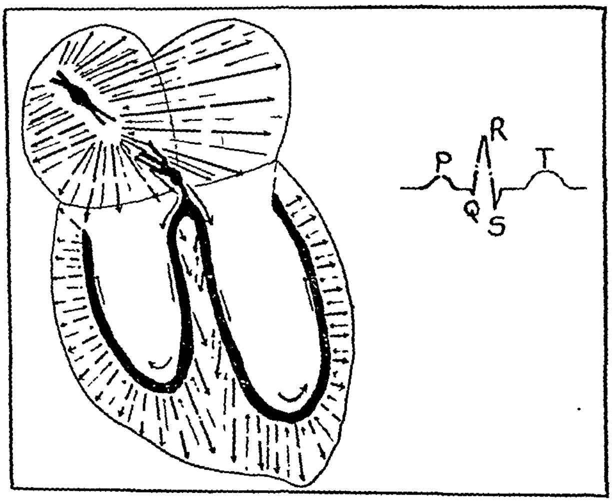

Fig. 5.—Spread and retreat of activation and idealized electrocardiogram.

Myocardial Involvement.—The evidence of myocardial involvement in the electrocardiogram is due to disturbances in conduction or to fresh injuries. Changes in the P wave, such as notching, prolongation of the span, and marked elevation of the amplitude, may be evidence of auricular myocardial involvement. The evidence of ventricular myocardial involvement consists of prolongation of the Q-R-S complex up to and beyond 0.12 second, extensive slurring or notching of the Q-R-S complex, marked depression of the amplitude of the Q-R-S complex, noticeable deviations of the level of the S-T interval, inversion or flattening of the T wave, bizarre appearance of the entire ventricular complex, and evidence of auriculoventricular block. When the changes are slight, it is often difficult to estimate whether the change in configuration is within normal limits or not. Furthermore, each age has its own norm, and a certain degree of myocardial fibrosis and coronary sclerosis may be viewed as natural or normal for the older individual. For these reasons, it is often impossible to make a conclusive diagnosis of myocardial involvement.

The amount of abnormality of the electrocardiogram is not parallel to the amount of heart damage. The heart, like the brain, has many silent areas, extensive involvement of which may lead to little or no change. On the other hand, slight localized lesions in one of the bundle branches will lead to extensive alteration of the electrocardiogram. The evidence of myocardial involvement in the electrocardiogram must always be correlated with the clinical findings. In only a few instances is the information of significance without such reference; viz., in recent coronary occlusion, in overdigitalization and in bundle branch block. In the first two, the nature of the involvement is shown; in the third there is evidence that one or other ventricle is less synergically stimulated and therefore pumps less efficiently. So-called low voltage does not always indicate myocardial involvement. It may result from a decrease in the resistance of the body shunts or from a more horizontal position of the resultant battery of the heart in the anteroposterior plane.

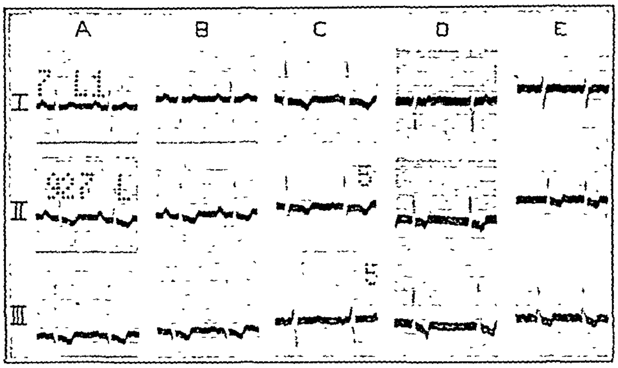

Fig. 6.—Influence of digitalis bodies on T wave.

The electrocardiogram does not give any information as to the etiology of myocardial involvement, except in the peculiar changes caused by digitalis, by recent coronary occlusion or by acute pericardial effusion. Even in these conditions it may give misinformation. The electrocardiogram records changes in the functional properties of the heart; it registers anatomic changes only when they disturb these functions of the heart. There is nothing in the electrocardiogram to show whether the involvement is organic, toxic, or the result of ischemia; the clinical findings must determine the cause.

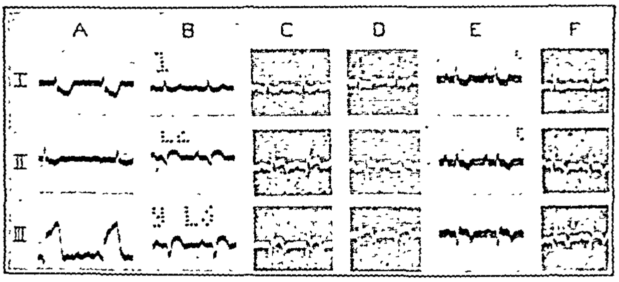

Fig. 7.—Electrocardiogram in recent coronary occlusion

Digitalis bodies may cause a typical type of T wave inversion as shown in segments *A, B, C, D* and *E* of figure 6. They may produce other changes besides this; in fact, almost any type of electrocardiogram can be produced by digitalis. The "digitalis" T wave occasionally occurs in other conditions, and, on the other hand, digitalis intoxication often fails to cause the T wave change. Reliance should therefore not be placed on T wave changes alone in detecting digitalis intoxication.

A recent coronary occlusion produces a whole series of changes, such as shown in figures 7 and 8; viz., a *monophasic curve (segment A)*; a marked deviation of the S-T level above or below the iso-electric level without prolongation of the Q-R-S deflection (segments *B, C, D, E* and *G*), occasionally in the form of a high take-off (segments *C* and *D*); a cove-shaped inverted T, peaked and with rounded shoulders whose convexities are upward (segments *C, D, E, F, G, H, I, J, K*); a large Q wave (segments *C, D, F, H* and *I*), or various combinations. The deep T wave may sometimes dominate the electrocardiogram, as in segments *G, J* and *K*.

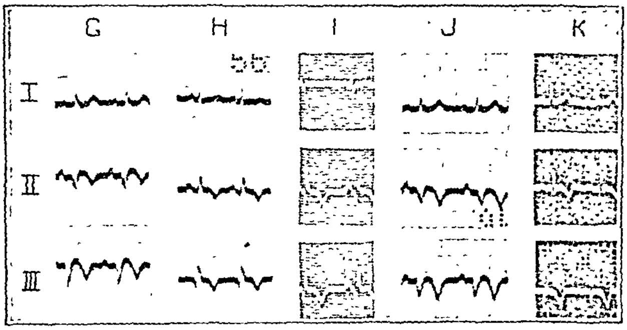

Fig. 8.—Electrocardiogram in recent coronary occlusion.

By following the rapidity of the changes in the electrocardiogram, some idea of the rate of recovery or progress of a case of coronary occlusion can be reached. In all such cases a series of records should be taken for this reason. More conclusive evidence of a coronary occlusion may be obtained from such a series than from a single record alone. Coronary occlusion may lead to nonspecific changes in the electrocardiogram; viz., "low voltage," bundle branch block and various arrhythmias, such as extrasystole, paroxysmal tachycardia and fibrillation. Occasionally, clear-cut cases of coronary occlusion occur without any noticeable change in the electrocardiogram. On the other hand, any condition of myocardial ischemia besides coronary thrombosis may lead to so-called coronary deviation of the Q-R-S-T, the most common form of which is acute pericardial effusion.[5] Even in coronary occlusion, recent work[6] has shown that the changes are due *in part to the decrease in the heart's pumping* ability.

The occurrence of such striking and distinctive changes in coronary occlusion is important in differentiating atypical attacks of this condition from abdominal disease. It is, however, bad practice to ascribe to coronary occlusion an electrocardiogram showing minor changes.

Recently Wilson and his co-workers[7] have questioned the validity of the present method of localization of bundle branch block and ventricular extrasystoles. Many years ago. Fahr[8] raised the same question on other grounds. The general conception, which follows the lead of Lewis,[9] is that an inverted major initial deflection in lead III indicates left preponderance, right bundle branch block or left ventricular extrasystole, while inversion of the major initial deflection in lead I indicates right preponderance, left bundle branch block or right ventricular extrasystole. While Wilson and his co-workers do not question the diagnosis of preponderance, they claim that, in the past, in the diagnosis of the location of bundle branch block and ventricular extrasystoles, right and left have been reversed. They point out that the heart in man differs from that of the dog in that the left ventricle is above rather than to the left of the right ventricle. In favor of this belief is the observation that so-called right bundle branch block occurs more frequently in the electrocardiogram while left bundle branch block occurs more frequently at autopsy. Oppenheimer and Rothschild[10] have shown in a number of cases that at autopsy the left bundle was *involved and yet the electrocardiogram showed evidence of so-called right bundle branch block*. It seems to me that some of this discrepancy may be due to the frequency of left ventricular preponderance in these cases. The preponderance will determine the direction of the major initial deflection and the block will prolong the span of the Q-R-S complex. Cases such as reported *by* Luten[11] may be examples of the transition between these two stages. It seems to me that confirmatory evidence is needed before finally accepting the views *put forward by Wilson and his co-workers. In* connection with bundle branch block, I would say emphatically that the terms levogram and dextrogram are misnomers.

Ventricular Preponderance.—The aid the electrocardiogram offers in determining the heart valve involved or in locating the congenital lesion depends on the greater hypertrophy (and probably dilatation) caused by the lesion in either the left or the right ventricle. As is well known, the diagnosis of preponderance is made only when, in addition to the electrocardiographic changes, it is known from other evidence that the heart is enlarged.[12] In mitral stenosis, in congenital pulmonary stenosis, patent ductus arteriosus or patent interventricular septum, in emphysema and in arteriosclerosis of the pulmonary arteries, the right ventricle is *ordinarily* enlarged more than the left, causing an inversion of the major initial deflection

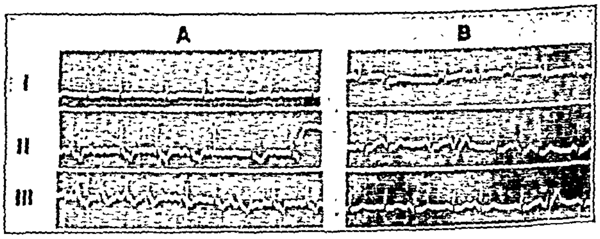

Fig. 10.—Electrocardiogram: *A*, resulting from auricular fibrillation; *B*, resulting from interspersion among the sinus beats of extrasystoles of many focal origins.

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[5] Katz, L. N.; Feil, H. S., and Scott, R. W.: The Electrocardiogram in Pericardial Effusion, Am. Heart *J.* **5**:*78 (Oct.) 1929.*

[6] Feil, H. S.; Katz, L. N.: Moore, R. A., and Scott, R. W.: The Electrocardiographic Changes Produced by Myocardial Ischemia, Am. Heart J. **6**: 522 (April) 1931. Katz, L. N., and Wallace, A. W.: The Rôle of Cardiac Ischemia in Producing R-T Deviations in the Electrocardiogram, Am. J. M. Sc. **181**: *836 (June) 1931.*

[7] Barker, P. S.; Macleod, A. G., and Alexander, J.: The Excitatory Process Observed in the Exposed Human Heart, Am. Heart J. **5**: 720 (Aug.) 1930. Wilson, F. N.: Personal communicaton to the author.

[8] Fahr, George: An *Analysis of the* Spread of the Excitation Wave in the Human Ventricle, *Arch* Int. Med. **25**: 146 (Feb.) 1920.

[9] Lewis, Thomas: The Mechanism and Graphic Registrations of the Heart Beat, ed. 2, London, Shaw & Sons, 1925, p. 211.

[10] Oppenheimer, B. S., and Rothschild, M. A.: Electrocardiographic Changes Associated with Myocardial Involvement, J. A. M. A. **69**: 429 (Aug. 11) 1917.

[11] Luten, D., and Grove, E.: Incidence and Significance of Electrocardiograms Showing Features of Left Axis Deviation and Q-R-S of Normal Duration with Inverted T_1 and Upright T_3, Am. Heart *J.* **4**: 431 (April) 1929.

[12] Wilson, F. N., and Herrmann, G. R.: An Experimental Study of Incomplete Bundle Branch Block and of the Refractory Period of the Heart of the Dog, Heart **8**: 229 (May) 1921.

in lead I, as in segments *A, B, D* and *E* of figure 6. In aortic insufficiency, in aortic stenosis, in congenital atresia of the aorta, in hypertension, in hyperthyroidism, and usually in coronary sclerosis, the left ventricle is enlarged more than the right, producing an inversion of the major initial deflection in lead III, as in segment *C* of figure 6.

Management.—The electrocardiogram aids in treatment by making clear the nature of the arrhythmia. It helps to decide the progress of the case in coronary occlusion, as was previously mentioned. It shows the stage of digitalization by the inversion of the T wave and by evidence of block. Many times, the conversion of auricular fibrillation to normal mechanism may be missed because the digitalis or quinidine used has induced so many extrasystoles that clinically the impression from examination of the pulse and heart may be that the fibrillation is still present. The inadvisability of continuing medication is obvious. Thus, segment *A* in figure 10 shows the irregularity of the pulse due to auricular fibrillation, and segment *B* the irregularity, which is as marked as in *A*, owing to the interspersion among the sinus beats of extrasystoles of many focal origins. In such cases, the electrocardiogram alone gives the information as to when the medication should be stopped.

This brief outline of the status of the electrocardiograph, it is hoped, has shown the dependence of its clinical value on the knowledge of the genesis of its records. The discussion, it is further hoped, has served in [illegible] close interrelation between theory, so [illegible] which can also be shown in other fields of clinical medicine.

CARDIAC PAIN *

DON C. SUTTON, M.D.

CHICAGO

Heberden, by his classic description of angina pectoris, called attention to its importance. Hunter, Jenner, Parry and others early recognized the fact that fatal attacks of precordial pain were usually associated with arteriosclerosis of the coronary arteries. Later, Blackhall, See, and Huchard,[1] believing the pain of angina pectoris to be due to decreased blood supply to the heart muscle, advanced the theory of spasm of the coronary arteries to explain those cases in which no obvious arteriosclerotic changes were observed.

By 1899, Huchard was able to collect eighty theories as to the cause of angina pectoris. Of these, only three are now recognized as possible causes of cardiac pain:

1. Cardiac pain is due to decreased blood flow to a part or all of the myocardium, which is caused either by arteriosclerotic narrowing or by a temporary spasm of the coronary arteries.
2. Cardiac pain is due to the stretching of the acutely or chronically inflamed aorta or aortic ring, incident to exercise, according to Allbutt, Wenckebach and Vaquez.
3. According to Mackenzie,[2] cardiac pain is due to exhaustion of the heart muscle, either from defective blood supply through narrowing of the coronary arteries or from extensive damage to the heart muscle from other causes.

Experimental study of cardiac pain has appeared impossible, because general anesthesia is necessary before approach to the heart or coronary arteries can be made. Singer [3] has studied the pain response to coronary manipulation under light morphine anesthesia. In his experiments the chest was kept open and continuous intratracheal artificial respiration was employed. He assumed that stimulation of respiration was an index of pain. It has since been shown, however, that respiratory stimulation during manipulation of the heart, coronary arteries, or aorta may occur without pain.

By employing methods previously reported,[4] it has been possible to study the pericardium, the myocardium, the coronary arteries and the aorta in unanesthetized dogs, with regard to the type of stimulus required to evoke the pain response and the location of nerve endings for pain, and by such experiments in the dog and monkey (*Macacus phenur*) the following observations have been made:

Pricking or pinching of the parietal pericardium elicits a pain response; stretching or pulling does not. Neither mechanical nor chemical irritation of the visceral pericardium evokes a pain response.

Stretching of the ventricular walls or local mechanical or chemical stimulation of the myocardium fails to produce a pain response.

Temporary partial or complete closure of either a coronary artery or vein or of both invariably elicits a pain response. This is true of both the right and the left coronary arteries and their branches. This pain response has been shown to be due most probably to the decreased flow of blood to the myocardium (ischemia or anoxemia). The observations that my associates and I made indicated that the severity of the pain varies with the amount of closure of the artery and, to a greater degree, with the size of the arterial branch constricted. The pathway of the pain response is through nerve fibers that accompany the coronary arteries and lie in the adventitia of the arteries. In the dog, the pain response from the heart passes to the central nervous system through the left sympathetic chain of ganglions. The pain pathway may be severed by destroying or narcotizing the nerve fibers in the perivascular tissue of the obstructed coronary vessel or by the removal of the stellate ganglion or of the annulus of Vieussens.

Under procaine anesthesia, a dilator, as previously described,[5] may be passed through the left internal carotid artery into the ascending aorta or farther downward into the aortic ring. Stretching of either the normal aorta or the aortic ring fails to produce pain.

In view of the theory that cardiac pain arises from the stretching of an acutely or chronically inflamed aorta, and in view of the possibility that inflammation may "sensitize nerve endings," I am now conducting experiments in which inflammation of the aorta is produced prior to experimental dilation or stretching. Preliminary observations indicate that pain does not result from stretching an injured aorta.

Experimentally, a pain response has been observed to occur in the dog and monkey only when the blood flow to the myocardium is diminished or stopped. On the basis of my observations I conclude that experimentally the pain response is caused by either ischemia or anoxemia. A great mass of clinicopathologic evidence further substantiates this conclusion.

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* Read before the Section on Pathology and Physiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Huchard, Henri: Traité clinique des maladies du coeur, et de l'aorte, ed. 3, Paris, Gaston Doin, 1899.

[2] Mackenzie, James: Diseases of the Heart, London, Oxford University Press, 1918.

[3] Singer, R.: Experiments on the Sensibility of the Heart and Larger Vessels to Pain and Relation to Angina Pectoris, Wien. Arch. f. inn. Med. **12**: 192-208 (Feb.) 1926.

[4] Sutton, D. C., and King, W. B.: Physiological Effects of Temporary Occlusion of the Coronary Vessels, Proc. Soc. Exper. Biol. & Med. **25**: 842 (June) 1928. Sutton, D. C.: Studies of the Mechanism of the Production of Cardiac Pain, Tr. Inst. Med. Chicago, February, 1929. Sutton, D. C., and Lueth, H. C.: Pain, Arch. Int. Med. **45**: 827-867 (June) 1930.

[5] Sutton (footnote 4). Sutton and Leuth (footnote 4).

There are several ways in which such an ischemia or anoxemia may occur in the heart of man:

NORMAL HEART

In the normal heart with normal coronary arteries, overexertion may induce a relatively insufficient blood supply to or anoxemia of the heart muscle, which explains the painful precordial sensations just before "second wind" or on marked exertion. In the very rapidly beating hearts of exophthalmic goiter, paroxysmal tachycardia or auricular flutter, cardiac pain may occur on the same basis. This may also be the explanation of the occurrence of cardiac pain in severe anemia, especially pernicious anemia.

Such a case was observed in a woman, aged 40, who gave no previous history of cardiac pain. She was seen during the course of an acute aplastic anemia. When the total number of red blood cells fell below 1,500,000, turning in bed produced severe precordial pain, which was relieved by glyceryl trinitrate. After a blood transfusion the attacks disappeared, to recur when the number of red blood cells again fell below 1,500,000. The same sequence of events followed a second transfusion. Necropsy showed normal coronary arteries.

SPASM OF THE CORONARY ARTERIES

There is much conclusive evidence of the existence of a dilator mechanism in the coronary arteries; on the other hand, the existence of a constrictor mechanism is doubtful. Even though the possibility of a spasm of the coronary arteries has neither been proved nor disproved, its presence is not essential for an explanation of the coronary artery origin of cardiac pain. A slight sclerosis or occlusion of a single branch, in the absence of a functional anastomosis with neighboring branches, may be sufficient to reduce the blood flow to a portion of the myocardium.

Careful microscopic studies[6] have shown the frequency of sclerosis in the smaller branches. It has also been observed that, in otherwise normal arteries, sufficient sclerosis often exists about the orifices of the smaller branches to occlude definitely the ostia, functionally at least.

SCLEROSIS OF THE CORONARY ARTERIES

The narrowing of a single branch may produce a relative anoxemia to a portion of the myocardium during exercise. On the other hand, extensive arteriosclerosis of the coronary arteries may be present without pain. This absence of the pain appears to be due to an extensive anastomosis between the branches of the coronary arteries.

Complete closure of a coronary artery or of one of the branches by an embolus or a thrombus produces pain of extreme severity with a duration of several hours or even days. After complete infarction with tissue necrosis, the pain ceases. Individuals who have had attacks of angina pectoris preceding cardiac infarction may afterward be completely relieved. This may be explained by the closure of the single artery, which formerly was sufficiently narrowed to cause the cardiac pain. In those cases in which anginal attacks continue after closure of an arterial branch, there are other arteries, only partially occluded, which cause the continuance of the pain.

Extensive studies of the pharmacologic action of drugs, especially the nitrites and the theobromine derivatives, on coronary flow, have further served to explain the action of these drugs in clinical cardiac pain. Attacks of angina pectoris are in the vast majority of cases immediately relieved by administration of glyceryl trinitrate or amyl nitrite. This relief is due to the prompt dilatation of all coronary arteries and especially to the increased flow through the collateral anastomosing arteries.

In cases of extreme calcification of the coronary arteries, the nitrites may fail to act because the arteries can no longer be dilated. In complete closure of a branch of a coronary artery with myocardial infarction, the nitrites fail entirely to relieve the pain. While the theobromine compounds fail to relieve an attack of angina pectoris because of their relatively slow action, continuous administration greatly increases coronary flow and serves to protect against attacks.

REFERENCE OF CARDIAC PAIN

In the dog, experimental evidence shows that the pain fibers from the heart are carried in the left sympathetic chain. Operative evidence in man shows that the pain fibers are also mainly radiated by the left sympathetic ganglions, although occasionally they may also be in the right sympathetic ganglions. As shown by alcohol injections, pain is carried from the spinal cord to the peripheral nerves, mainly through the first to the fifth dorsal nerves.

Clinically, the pain of angina pectoris may vary from exceedingly slight to extreme viselike constriction of the chest. It may be localized over the sternum, usually the middle or upper third, more rarely the lower third: or it may be localized over the precordium, usually over the fourth and fifth intercostal spaces. The usual distribution of referred pain is that described by Mackenzie; i. e., to the left shoulder and axilla and down the inner aspect of the left arm, elbow, wrist, and to the tip of the little finger. It may be referred to only a part of this area, as, for instance, only the elbow or little finger. Again, it may be referred to the posterior and lateral aspect of the left side of the neck and to the left lower jaw. Very rarely, pain may be referred to both arms, and yet more rarely, to the right arm only.

The pain of angina pectoris is also described as being referred to the abdomen. These unusual points of reference of pain, the right arm and the abdomen, are much more frequent in myocardial infarction than in true angina pectoris; in fact, in myocardial infarction the pain is frequently referred only to the abdomen, thus simulating acute surgical lesions of the upper abdominal viscera.

Attacks of angina pectoris and myocardial infarction may rarely occur without the presence of pain. Extreme dyspnea, disproportionate to the physical findings, is the only evidence of the attack. Experimentally, closure of the coronary artery causes paroxysmal dyspnea.[7]

CONCLUSION

In consideration of the facts stated, cardiac pain is caused by ischemia or anoxemia of the heart muscle.

30 North Michigan Avenue.

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[6] Sutton, D. C., and Brandes, W. W.: Arteriosclerosis of the Coronary Arteries: A Clinicopathological Study, J. Lab. & Clin. Med. **16**: 1185 (Sept.) 1931.

[7] Singer (footnote 3). Sutton and Lueth (footnote 4).

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. EYSTER, BAZETT, WIGGERS, KATZ AND SUTTON

Dr. A. C. Ivy, Chicago: There is one question that I should like to ask Dr. Eyster. A number of clinicians have come to me with the question of why, when venous section is apparently indicated, some patients respond favorably and others do not. Are there any criteria on which one might predict the response of different patients to venesection?

Dr. Wallace M. Yater, Washington, D. C.: I should like to ask Dr. Wiggers whether the increase in pulse pressure is proportionate to the size of the leak, or whether aortic regurgitation may occur without any increase in pulse pressure. I have recently seen two patients with the typical murmur of aortic regurgitation and the aortic type of cardiac enlargement in whom there was not an increase in pulse pressure. In one case the systolic pressure was 160 and the diastolic 120. Neither patient showed evidence of syphilis or of rheumatic endocarditis. I have seen other patients with this picture. These cases have been called aortic regurgitation due to arteriosclerosis of the aortic orifice or simple dilatation, but these points have never been satisfactorily settled. There seems to be little doubt, however, that there is actually an insufficiency of the aortic valves. If the increase in pulse pressure is not proportionate to the size of the leak, when does it begin after the leak develops and what determines the degree of increase?

Dr. L. F. Bishop, Jr., New York: I should like to ask Dr. Sutton what the criteria were that he used in determining the pain response of dogs. He mentioned increased respiration as being one. What were the others and how could the pain response in dogs be compared to a human response?

Dr. A. G. Sullivan, Hot Springs National Park, Ark.: I should like to ask Dr. Katz the significance of an increased P-R interval or so-called delayed conduction. Is there any evidence that this delay is in the auriculoventricular node and isn't it assuming a great deal to assume that this delay is in the node?

Dr. H. C. Stevens, Cleveland: Dr. Katz stated that the electrocardiogram does not give any evidence of the force exerted by the contracting heart. I should like to ask whether heart muscle differs in this respect from striated muscle. As Dr. Katz is aware, in the study of the problem of the plurisegmental innervation of striated muscle the magnitude of the action current, as measured by the excursion of the string galvanometer, has been assumed by such competent experimenters as Samojloff and Fulton to be directly proportional to the tension developed in the muscle. Furthermore, in justification of this assumption the measurement of tension by this method correlates well with the measurement of tension by other methods not electrical in nature.

Dr. J. A. E. Eyster, Madison, Wis.: With regard to Dr. Ivy's question as to determining in advance in an individual case the effectiveness of venesection, I regret to say that I do not know of any means by which this can be done. Venesection always causes a fall of venous pressure in decompensation. In favorable cases it remains low; in unfavorable cases it gradually rises over a period of several hours to its approximate original level. The question as to the effectiveness of venesection appears to depend on whether or not there is sufficient recovery possibility remaining in the heart muscle to enable it to benefit by the temporarily reduced load. If so, there may be a permanent restoration of the condition in which the load remains within the capacity of normal response of the heart muscle and compensation is regained. If on the other hand the muscle is damaged to the extent that little or no recovery occurs during the period of reduced load, the original situation returns. In my experience a second venesection is never effective in the latter case. I have not noted any relation to heart rate as suggested by Dr. Katz's question. The fact that some workers have found cardiac dilatation to follow experimental aortic regurgitation and others not, I believe can be explained on the time at which the observation is made subsequent to the production of the lesion. A sudden increase in heart rate on the production of the lesion occurs and, as Dr. Wiggers stated, is probably the immediate means of compensation. At this time the heart may not be dilated, but in my experience every case may be shown by the x-rays to be dilated within a few hours after the lesion is produced. Dr. Katz stated that no conclusions can be drawn from the T wave of the electrocardiogram as to the extent of cardiac systole. With this I entirely agree, but I feel that there may be nevertheless a relation between contraction of cardiac muscle and the T wave, for which view there is experimental support. Under certain conditions a strip of cardiac muscle may show no visible or recordable contraction and give rise to an electromyogram with a normal R complex and with no T wave.

Dr. J. F. Fulton, Jr., New Haven, Conn.: I should like to ask Dr. Henderson whether he attributes the greater fall in blood pressure which occurs after spinal transection in the monkey (as compared with the lesser fall in cats and dogs) to the greater diminution in tonus of the skeletal musculature incident to the more profound spinal shock seen in this higher form. It seems to me a most suggestive conception since it allows one to correlate much more intimately than was possible before the activities of the tonic mechanism of the central nervous system with the tonic activity of the vasomotor system.

Dr. L. N. Katz, Chicago: With regard to the P-R interval indicating damage in the node alone, I don't believe one can make that assumption soundly, and I did not intend to give that impression. Damage to the common bundle, to the auriculoventricular node and to certain intra-auricular pathways can produce block. It is known that the heart tissues that have the slowest conduction are the auriculoventricular and the sinus nodes, so that when the damage is functional or toxic rather than organic, the chances are that this will affect the auriculoventricular node. In regard to Dr. Stevens' question, it is purely fortuitous that Fulton's results confirm those obtained by other methods. I cannot see how differences in electrical balance in two regions, which are additive algebraically, can summate in the same fashion as tension or contraction which in summation can be considered as all positive. There is little loss in mechanical summation by one fiber pulling against another, whereas in electrical balance there is a large loss by neutralization. Furthermore, Samojloff himself is one of the first to expound the interference theory just mentioned. The vast majority of investigators are agreed that there is no clear connection between the size of the Q-R-S complex and the magnitude of contraction. With regard to the T wave, there is just as good evidence coming from the laboratory to show that when the contraction disappears the electrical record also disappears. I believe the question of the genesis of the T wave is settled. At least one can assume that it is settled until somebody upsets the conception I have presented, which fits all the facts. In every change in the magnitude of contraction I can show as many cases of decreased T waves as increased T waves. For example, when the heart beats more feebly there are as many cases in which the T wave gets larger as there are cases in which it gets smaller. The Q wave has been recently used by Pardee as a diagnostic criterion for coronary occlusion. He assumes that when the Q wave is one fourth the size of the major initial deflection it points, like the cove-shaped T, to coronary occlusion. I have found Q waves occurring in other conditions besides coronary occlusion. As regards the relation of intraventricular block to bundle branch block, I grant that Eppinger and King have claimed that they used the clinical method of palpating the apex to detect bundle branch block. Equally competent physicians have failed to define such a split apex beat. Intraventricular block is the more inclusive term and includes bundle branch block. In regard to Dr. Eyster's comment about the single plane, it is quite true that some cases of clear-cut coronary occlusions occur without electrocardiographic changes. Many cases that show low voltage, bundle branch block and arrhythmias do not show the typical electrocardiogram. When the typical electrocardiogram occurs, particularly when a series of records show progressive changes, I think that 99 per cent of the time it is pathognomonic of a coronary occlusion.

Dr. R. F. Leinbach, Charlotte, N. C.: I should like to ask Dr. Sutton whether he accepts the theory of vascular spasm in the production of angina pectoris. Take for instance an individual who at the age of 80 years develops angina pectoris and is unable to walk twenty steps without having to inhale amyl nitrite and then is put on theophylline ethylenediamine consistently over a course of a year or more and before the end of that time becomes entirely able to go up and down stairs and where she pleases. One seems to be driven to one of two alternatives—either to accept the idea of vascular spasm or the idea that theophylline ethylenediamine has a distinctly beneficial effect on the circulation of the heart.

Dr. Alphonse McMahon, St. Louis: I should like to ask Dr. Sutton what his opinion is of the theory of pain in angina pectoris as related to the coronary dilatation instead of coronary spasm with the attack.

Dr. F. C. Wood, Philadelphia: The question arises as to whether the phenomena of cardio-aortic sensation in man are like those in dogs. There are two clinical observations which do not fit in with the belief that aortic distention and aortic valve rupture in man are painless: 1. Howard (*Canad. M. A. J.* **19**:12 [July] 1928) states that severe pain often accompanies rupture of an aortic valve leaflet in man. 2. There have been certain cases of dissecting aneurysm reported in the literature in which the formation of the aneurysm has been accompanied by severe pain, in the absence of external perforation of the aneurysm into the mediastinal tissues. In these two instances it is difficult to explain the occurrence of pain, if the results of Dr. Sutton's experiments hold good for man.

Dr. S. L. Immerman, Philadelphia: Perhaps there is a difference between intraventricular block and bundle branch block. I understood Dr. Katz to say that in bundle branch block there are no physical signs and one must depend entirely on the electrocardiogram. It is stated that in about 80 per cent of the cases of bundle branch block there are physical signs, changes in the appearance of the apex beat to inspection and changes in the first sound.

Dr. H. C. Bazett, Philadelphia: I should like to ask Dr. Sutton whether he is sure that the coronary pain is due to ischemia rather than to distention. It seems to me that the evidence presented supports but does not prove this explanation. I have punctured my vessels in many places and always the large vessels are much less sensitive than the small vessels. To puncture the radial artery is very painful. It seems to me that the nerve supply is less in the larger vessels and that there is a possibility, as Dr. Wood brought forward, of pain from the aorta if the lesion is large enough, but not pain as easily from the aorta as from the smaller vessels. I should like to believe that Dr. Wood is right because his view accords with my theories.

Dr. C. J. Wiggers, Cleveland: I would like to comment on Dr. Sutton's statement that no coronary vasomotor mechanism has been demonstrated. I should like to ask him what is the matter with my own work on the subject. It apparently has been confirmed. I should be glad to have his criticism of the experimental evidence. Dr. Yater's question brings up the whole question as to the value of blood pressure determinations as criteria of aortic insufficiency. Experimental results would indicate that any aortic insufficiency, small or large, should cause a drop in diastolic pressure, but nature makes her experiments, that we call disease, somewhat more complicated than we do in the laboratory. I should say that an aortic insufficiency accompanied by a high diastolic and high systolic pressure, might be caused by several things: First, it might be a complication due to acceleration of the heart. In the second place, it might obviously be due to an increase in the peripheral resistance, either constriction or change in the peripheral vessels. In the third place, it might be due to a rather small leak. As a matter of fact, the clinical record I threw on the screen was taken from a case that happens to be from a patient who displayed a collapsing pulse, especially when one held the arm up. A distinct water hammer type of pulse was also recognized. The central pulse showed that there was a small regurgitation, but a diastolic murmur was distinctly present. One may have good murmurs with little back flow. In aortic insufficiency a loud murmur may be present with little regurgitation; and a comparatively softer murmur may obtain when the regurgitation is large. The murmurs are not necessarily a criterion of considerable regurgitation.

Dr. D. C. Sutton, Chicago: In answer to Dr. Bishop with regard to the criteria for pain response: In dilatation of the aorta, dyspnea does occur, but without evidence of pain. On the other hand, the moment one begins constriction of the coronary artery, even a relatively small branch, the animal becomes definitely restless along with the increased respiration, and if the branch is a little larger the animal will show all the ordinary evidences of pain. In regard to Dr. Wiggers' question, the attitude I have taken with regard to vascular constriction is not that it is impossible, but that it is still controversial. On the other hand, there is no question about the dilator mechanism. If one can explain cardiac pain as due to a definite process, namely, to disease of the coronary arteries, one places treatment and prognosis on a firm foundation. In regard to the question of Dr. Leinbach, the effects of theobromine can be explained thus: The drug stimulates the dilator mechanism and increases the flow of blood either through the narrowed artery or through dilatation of anastomosing arteries. I have seen patients completely relieved from attacks of angina for long periods as a result of theobromine compounds and at necropsy there was found extensive sclerosis of the coronary arteries. If one has a narrow branch and dilates the bed beyond it, the flow will be increased. In regard to the question about dilatation instead of spasm, as a result of these experiments I believe the sole factor is that of decreased blood flow. In regard to Dr. Wood's question of the pain in the aorta from dissecting aneurysm at the time of rupture: When these experimental animals have ruptured aortas, the pain response appears with tearing of the mediastinum. In regard to Dr. Bazett's question as to distention, I take it that he means distention of the artery. We have distended with the dilator and salt solution the peripheral arteries, the femoral, and the abdominal aorta and did not get evidence of pain.

TETANY ACCOMPANIED BY HYPERPYREXIA AND VOMITING IN THE FIRST DAYS OF LIFE

AN UNUSUAL SYNDROME *

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Medical literature is replete with statements that tetany does not occur in the new-born infant. It is our purpose in this paper to present three cases, observed within the past year, of new-born infants who presented a clinical picture which we believe should permit its inclusion under the term "tetany."

Our cases are the following:

Case 1.—A. C., a girl (seen by S. K.), the first child of normal parents, delivered by Dr. E. M. Hawks, July 17, 1930, at term, weighed 7 pounds 7 ounces (3,375 Gm.). Labor was somewhat difficult because of a rigid perineum. An episiotomy was performed. The child was born with one coil of cord wound around her neck but showed no ill effect from it.

In her first day of life she vomited, first some mucoid material, subsequently everything offered. The vomiting continued the next day and became projectile in character and followed immediately after taking water or a formula. The child was put to the breast but would not nurse. The nurse noted that the child was very restless, was nervous, and cried frequently and with a shrill voice. On the third day, vomiting continued and the temperature rose to 103.6 F. Peristaltic waves, from left to right, were noticed, and the abdomen became distended. A consulting pediatrician suggested the diagnosis of pyloric stenosis and advised atropine and subcutaneous injections of dextrose solution. No improvement followed the administration of atropine or dextrose solution. On the fourth day of life, the temperature was 105 F.; her abdomen was markedly distended; the child was markedly hypertonic and responded to noises or to being touched by a generalized jerk or spasm. The Chvostek sign was very active and the Trousseau phenomenon also positive. There was a generalized increase of reflexes. When offered fluid, the child took it with much desire but vomited it almost before it had time to enter her stomach. Whole milk with 17 per cent added sugar was just as futile. A rectal drip of 5 per cent dextrose solution was retained. A tube entered the stomach with ease and a return of bile stained fluid was seen. That, plus the fact that meconium had been passed and was also bile stained, suggested that there was no complete intestinal obstruction. To rule out a possible birth injury, a lumbar puncture was done. The fluid was clear, under normal pressure, and contained only 6 cells.

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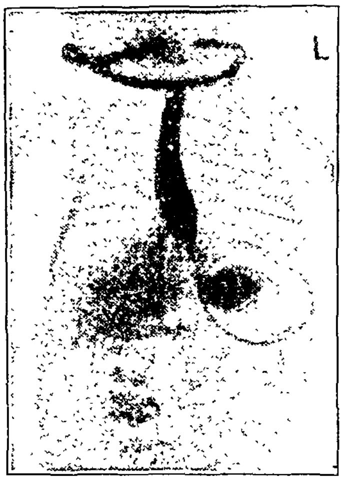
Fig. 1.—Condition immediately after barium was given. The spindle shaped esophagus is shown with spasm at the cardia. Barium is also present in the stomach.

However, despite the symptoms suggesting tetany, the diagnosis of incomplete intestinal obstruction was made. A consulting pediatrician concurred and a surgeon was called. Before the surgeon arrived, barium was given in a small amount of milk and its progress through the stomach and intestine was observed by fluoroscopy and roentgenograms. Fluoroscopy and roentgenograms (figs. 1 and 2) showed a marked cardiospasm, but some of the barium entered the stomach immediately and within a few minutes was in the duodenum. The barium reached the cecum in about five hours but did not pass this part. Enemas previously given were without return, either fecal or gaseous. A barium enema was given, and within a few minutes was expelled with explosive force. Two balls of barium traced from the small intestine were found, thus proving definitely that no intestinal obstruction existed. Spasm of the large intestine was also visible on the roentgenograms. The cardiospasm was still present after twenty-four hours. Several convulsions were observed in the next twenty-four hours and were characterized by carpopedal spasm and a shrill cry. On the fifth day of life the temperature was 106 F., the distention had recurred, the signs of tetany were even more marked, and vomiting continued to be severe. A formula of human milk plus 10 per cent sucrose and 8 per cent farina was made into a thick cereal and given in 1 ounce feedings every two hours. That was retained, and for the first time her weight remained stationary—6 pounds and 5 ounces (2,865 Gm.). At midnight, July 21, her fifth day of life, the temperature was 107.4 F. and she had several violent generalized convulsions. Her temperature dropped to 104 after baths, enemas and wet packs were given. Hyperirritability, restlessness, hyperacusis, positive Chvostek's sign, Trousseau's phenomenon and typical carpopedal spasm continued. The formula was stopped, for fear that it may have contributed to the apparent progress of her illness. July 22, her sixth day, the temperature was 105 F., the Chvostek sign, Trousseau phenomenon and shrill voice were still evident, and vomiting and spasms continued. Blood was drawn for chemical analyses and 8 cc. of calcium gluconate was injected intravenously. The effect was dramatic: the hands and feet, formerly very spastic, suddenly relaxed; she became more alert and brighter; her temperature began to drop; the vomiting diminished, and, in twenty-four hours, the Chvostek sign was barely obtained. The child had slept well for the first time; vomiting occurred only occasionally and no more spasms were observed. The child began to nurse well, she retained water, the temperature became normal, and from then on the child made excellent progress. A gastro-intestinal series, one week later, revealed that the cardiospasm, though still present when food was given, cleared up in a few minutes.

The child had pertussis at 4 months and hardly vomited. She is now 10 months old, weighs 26 pounds (11.8 Kg.) and is neurologically and otherwise a perfect baby. Blood calcium was 8.5 just before the calcium gluconate was injected.

Case 2.—Baby Z, seen by M. B. in consultation with Dr. Moses Lobsenz, was born Jan. 7, 1931, the second child of healthy parents, after a two hour normal noninstrumental labor. Birth weight was 8 pounds (3,630 Gm.). A few hours after birth the baby vomited a dark brown fluid. It was put to the breast on the second day and vomited several times. Toward evening of that day the temperature rose to 101 F. The third day the child seemed very uncomfortable and cried a great deal. It was given a colonic irrigation and passed much gas. At 5 p. m. castor oil was given and was vomited. Even water was promptly thrown up, the vomiting being projectile in nature. A green bowel movement was passed. The child looked toxic and ill. Atropine, 1/1,000 grain, was given by mouth. In spite of subcutaneous fluid injections, the symptoms continued till on the third day, when we were asked to see it, the condition had become very serious. The temperature had risen to 106.4 F. It vomited everything offered by mouth. It lay on its side with arms and legs in typical carpopedal spasm. Its cry was hoarse. The fontanel was depressed and the eyes were sunken. The abdomen was markedly distended and rigid. On being disturbed, the child went into a mild convulsion. The heart was rapid and regular but the pulse was very poor. Neither the ears, throat nor lungs showed any abnormality to account for the elevation of temperature. On account of the presence of carpopedal spasm, tests were made for Chvostek's sign. It was markedly positive, and the entire head turned in response to the light tap over the facial nerve. The baby appeared moribund. Eight cubic centimeters of calcium gluconate was injected intravenously at 3:40 p. m. At 4 p. m. 2 drachms of breast milk was offered and vomited. One hour later it was again offered and was retained. At 6 p. m. 90 cc. 5 per cent dextrose in saline solution was given under the skin. Breast milk in small quantities was given every two hours and was retained. By midnight the temperature had dropped to 100.6 F. but the general condition of the child was greatly improved: the convulsive movements stopped, the distention lessened, the vomiting disappeared and the spastic condition of the extremities relaxed. On the next day the infant slept almost all day and the temperature came down to normal, where it remained. The child made an uneventful recovery and, when seen again at the age of 2 months, was normal in weight and showed no evidence of rickets or of having been acutely ill.

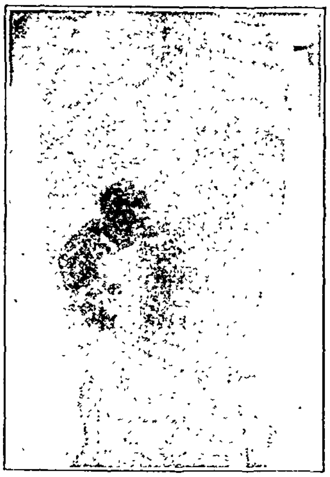
Fig. 2.—Condition five hours after barium was taken by mouth and immediately after a barium enema was given. Note the spindle shaped esophagus with cardiospasm; the stomach still full of barium; the large intestine full of barium except in the region of the descending colon where two spastic portions of intestine are seen; two small dense masses of barium in the cecum; fluoroscopy showed that these masses descended from the small intestine.

Case 3.—A., a boy, seen through the courtesy of Dr. William A. Somerville, was born Jan. 26, 1931, after an easy labor. The birth weight was 6 pounds 10 ounces (3,000 Gm.). On the day of birth the child vomited brownish mucoid material. January 27, the temperature rose to 102.6 F. and the baby refused the breast. A milk and water formula was offered but refused. On the fourth day of life the child's condition became much worse. The temperature rose to 104 F., the abdomen became greatly distended, and he had a general convulsion after which he remained cyanosed for about an hour. Oxygen was administered. The child's extremities assumed the typical tetany position. Chvostek's and Trousseau's signs were positive. The pulse was weak and the child appeared extremely ill. At 1:30 an ampule of calcium gluconate was given into the buttock and 50 cc. of physiologic solution of sodium chloride was given under the skin. The following day the fever had dropped to 101 F., the formula was better taken, the vomiting ceased and the spasm relaxed. From then on the baby made an uninterrupted recovery.

To summarize, we have reported the cases of three infants who became extremely ill in the first days of life. They vomited frequently from the first day on; their abdomens became markedly distended; the temperature rose to a great height; two of them had marked dysphagia; they evidenced signs of great nerve irritability—Chvostek's sign was extremely marked; their extremities were held in carpopedal spasm; their cries were hoarse; they had repeated convulsions and seemed about to die. They were given calcium intravenously and hypodermically and promptly recovered.

A clinical syndrome, very similar to the foregoing, was described in 1913 by Kehrer,[1] a Swiss gynecologist, who reported six cases under the title of tetany of the new-born. All his cases occurred during the first few days of life. They all showed carpopedal spasm and most of them had a very positive Chvostek's sign. One infant showed galvanic and faradic hyperirritability. Some of the cases presented a positive Trousseau's sign. A number of them had convulsions. Kehrer also described the occurrence of brawny edema on the abdomen and chest. Of his six patients, five promptly recovered after the administration of calcium. One patient died. The calcium was given in the form of calcium chloride, 0.2 Gm. five times a day by mouth. In one case, in which the infant seemed desperately ill, calcium was given hypodermically.

More recently, Shannon described a number of cases, first in 1929[2] and again in 1931.[3] His cases resemble those of Kehrer, as edema was one of the chief symptoms. Shannon concludes that the triad of symptoms edema, peripheral hyperirritability and cerebral compression constitute a syndrome which must be recognized as an entity and which he believes to be tetany.

We may digress for a moment here to discuss the concept of tetany. It must be realized that by tetany is now understood a group of symptoms characterized by hyperirritability of the nerves both to electrical and to mechanical stimuli, with local and general muscular spasms. It is now known that such a clinical picture may be brought about by several different etiologic factors. Thus, after excessive vomiting, chloride is lost to such a degree that alkalosis results and there is so-called gastric tetany. A closely related form may also result from hyperpnea and from the excessive administration of alkali. It has been suggested that tetany may occur as the result of irritation of a special portion of the brain and that there may be said to exist a tetany center. In infants occurs the form seen commonly in the presence of rickets, in which the symptoms are the result of faulty mineral metabolism. Finally, there is tetany due to hypoparathyroidism. It is, moreover, possible that parathyroid disturbances are bound up with other forms of tetany.

One must not forget that, with so diverse a series of etiologic factors, tetany should be viewed rather as a peculiar symptom complex than as a specific disease. It is also important to be open minded to the possibility that other causes for these symptoms, unknown at present, may bring about this same end-result.

When pediatricians insist that tetany cannot occur in the new-born infant, we believe that they are referring to so-called infantile tetany. The youngest age at which definite infantile tetany has been observed is in a case reported by Powers[4] in 1925. This infant, aged 5 weeks, had repeated convulsions. The electrical reactions were characteristic and the blood calcium was as low as 5.3 mg. Powers says, "While no absolute restrictions are ordinarily placed on the age incidence of infantile tetany, nevertheless its occurrence before the fourth month of life is generally held to be so rare as scarcely to warrant its consideration as a possibility in infants below this age." His patient was cured by the administration of calcium chloride.

J. P. Griffith,[5] in 1926, reported that in an infant, aged 5 weeks, with convulsive attacks, Chvostek's and Trousseau's signs were positive. The blood calcium was 5.3 mg. The child died suddenly while under treatment.

Blood calcium was determined in only one of our cases and was 8.5 mg. per hundred cubic centimeters, which is less than normal but beyond the figure commonly found with infantile or hypoparathyroid tetany. Although we do not regard our cases as infantile or hypoparathyroid tetany, it is interesting to repeat the views of Hess[6] on the relation between the blood calcium and the symptoms of tetany. Referring to infantile tetany, he writes: "One of the most valuable and constant signs of tetany is the lowered calcium in the blood. It is a sign that almost never fails and is almost pathognomonic. However, in nephritis one may find equally low percentages of calcium in the serum without evidence of tetany." He calls attention to the fact that in latent tetany the calcium is from 7 to 8 mg. and drops to 5 or 6 mg. with manifest tetany, but also expresses the fact that latent tetany may occur with calcium of 6 or 7 mg. and manifest tetany with calcium as high as 8 mg. He believes that "the lack of complete harmony between the clinical manifestations and the calcium in the blood indicates that some other factor other than the calcium concentration must be at work." We wish to recall that in renal rickets tetany has been observed with calcium of 10 mg., and absence of tetany has been reported with calcium of 5 mg. In the latter, tetany was absent supposedly because of the acidosis which usually occurs in this disease and permits a normal or increased ionization of calcium. In the former, no explanation is as yet known, unless the altered proportion of calcium to phosphorus is responsible for the tetany.

Among the symptoms of tetany, various authors have referred to localized muscular spasms. The common locations for such spasm are two: the muscles of the extremities giving rise to carpopedal spasm and those of the larynx giving rise to the crow. However, many other muscles may be involved. In 1911, Ibrahim[7] under the title "Tetany of the Sphincters of the Nonstriated Muscles and of the Heart in Nurslings" called attention to spasm of the bladder with retention, to rectal spasm and to esophageal spasm in cases of true tetany. We have seen localized spasm of the external muscles of one eye during a tetanic seizure and have also described a case of cardiac involvement with extreme tachycardia during manifestations of tetany. The occurrence of cardiospasm in our first case, definitely proved by roentgen examination, would also help, it seems to us, to show that some form of tetany was present.

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[1] Kehrer, E.: Die Geburtshilflich-gynäkolische Bedeutung der Tetanie, Arch. f. Gynäk. **99:** 372, 1913.

[2] Shannon, W. R.: Generalized Edema in Association with Tetany of the New-Born, Arch. Pediat. **46:** 549 (Sept.) 1929.

[3] Shannon, W. R.: Tetany, Generalized Edema and Cerebral Compression in the New-Born, Arch. Pediat. **48:** 153 (March) 1931.

[4] Powers, G. F.: Tetany as a Cause of Convulsions in Very Young Infants, J. A. M. A. **84:** 1907 (June 20) 1925.

[5] Griffith, J. P.: Blood Calcium in Spasmophilia, J. A. M. A. **86:** 828 (March 20) 1926.

[6] Hess, A. F.: Rickets, Osteomalacia, and Tetany, Philadelphia, Lea & Febiger, 1929

[7] Ibrahim, J.: Ueber Tetanie der Sphinkteren der glatten Muskeln und des Herzens bei Säuglingen, Deutsche Ztschr. f. Nervenh. **41:** 236, 1911.

We could not obtain a history of illness in the mothers of our patients, though Kehrer has shown in some of his reports that the mothers suffered from nephritis and that some of them showed positive Chvostek signs. One of us[8] showed in 1912 that the presence of a positive Chvostek sign in an older child or in an adult does not necessarily mean a real hyperirritability; in fact, we concluded that the sign loses its significance in the diagnosis of tetany as the age increases.

In our cases described in this paper, the irritability of the facial nerve was so great that, when it was tapped with a very light stroke of the percussion hammer, not only the face twitched but the entire body went into spasm with the hands and feet in typical carpopedal position. A similar response was called forth by shaking the bassinet or by making a loud noise.

We are not prepared to state positively what caused these new-born infants to go into this hyperirritable state, but it is of interest to note that all three vomited profusely and in a projectile manner and had high fever and marked abdominal distention. This would allow us to suggest that the tetany may have been gastric in origin, secondary to the vomiting. Unfortunately, we have no chemical studies to substantiate this. We do not maintain that these are cases of infantile tetany but we do believe that, in spite of being newly born, the children were suffering from manifest tetany. In favor of this we again cite the following: the presence of positive Chvostek's sign; presence of positive carpopedal spasm; presence of hoarse cry and crow; presence of convulsions; presence in two cases of dysphagia, which in one was definitely shown to be due to cardiospasm; finally, the amazingly prompt cure by the intravenous administration of calcium.

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ABSTRACT OF DISCUSSION

Dr. Benjamin Kramer, Brooklyn: Tetany is a clinical syndrome characterized by carpopedal spasm, laryngospasm and convulsions. These symptoms are dependent on an increased irritability of the nervous system to mechanical and electrical stimuli. The most common form of tetany is that which occurs in infancy, and is commonly associated with active or healing rickets. Rickets is seldom seen in infants less than 8 weeks of age. Hence, the impression that tetany cannot occur in the very young. There are, however, other conditions in which tetany may occur, such as pyloric obstruction with hyperemesis, and alkalosis produced by hyperventilation of the lungs or after the administration of large doses of sodium bicarbonate. Parathyroid deficiency may express itself as tetany. Age confers no immunity against these forms of tetany. Although the clinical manifestations in all forms of tetany are identical, the chemical changes in the blood may be quite different. Time will not permit a detailed discussion of these changes. The form of tetany that follows pyloric obstruction has been studied by McCann, by MacCallum and his co-workers, and more recently by Gamble. In animals in which pyloric obstruction has been experimentally produced there is a loss of hydrochloric acid and fixed base in the vomitus resulting in a decrease in the serum chloride concentration, an increase of bicarbonate and a diminution of total fixed base in the serum along with a tremendous reduction in total body fluids. Although the serum calcium concentration is usually normal, there is justification for the assumption that the Ca^{++} ion concentration is reduced. In all probability, the cases reported by Drs. Bass and Karelitz represent a similar condition. It is probable that some intracranial damage produced during birth initiated the vomiting and this in turn was responsible for the tetany.

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[8] Bass, M. H.: Chvostek's Sign and Its Significance in Older Children, Am. J. M. Sc. **144**: 64 (July) 1912.

EPILEPTIFORM SEIZURES OF JACKSONIAN CHARACTER

ANALYSIS OF ONE HUNDRED AND THIRTY CASES *

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AND
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ATLANTA, GA.

Localized cortical irritative phenomena occupy a most respected place in the attention of neurologists. Rightfully so, for it was from the study of such cases that cortical localization began and the way was paved for the present knowledge of cerebral cortical physiology. So that today, in patients who present symptoms of an irritative nature of the motor or sensory areas of the brain, correct localization is as certain as scientific diagnosis permits. The exact type of lesion is not so easily surmised as the location, which problem prompted this study of some 130 cases presenting localizing epileptiform attacks.

The literature is replete with reports of groups and single cases of jacksonian epilepsy as a result of injury to the cerebrum. There are also reported numbers of cases with localized motor or sensory attacks occurring in intracranial neoplasms. The location of these tumors has been both cortical and subcortical. Numbers of individual case reports are also to be found in the literature with just as numerous etiologic factors. However, a search of the literature does not yield any single large group of cases of different etiology. Such a collection of cases is very desirable, in order that an opinion concerning the various possible underlying lesions may be anticipated in cases evidencing localized cortical manifestations. There have evolved from this study certain statistical factors of practical and scientific value as well as a justification of certain preconceived ideas concerning the treatment of these cases.

One could not conscientiously deal with any phase of localized cortical phenomena without paying homage to the illustrious English neurologist Hughlings Jackson, who so forcefully detailed localized epileptiform attacks and for whom such cortical manifestations have been rightfully named. It was in 1869 that Jackson published his classic paper entitled "A Study of Convulsions,"[1] giving particular attention to localizing attacks occurring without a loss of consciousness. Some five years before this he had observed a series of cases of aphasia with an associated right hemiplegia. At this time he hinted at the possible association of right sided convulsions without aphasia. Jackson wrote: "Palsy depends upon the destruction of fibers and convulsions on instability of gray matter." As early as 1824, Bravais (and later Todd) described unilateral convulsions without a loss of consciousness. In 1870, Hitzig and Fritsch demonstrated the motor response in stimulating the brain, an observation which was definitely proved by Ferrier two years later. These facts have been emphasized by Parker[2] in a recent historical contribution. There have been numerous notable contributions[3] to the question of cortical irritability, of both experimental and clinical value. However, there still remains the unsettled question as to whether the movements are due to the stimulation of the cortex or to the removal of an inhibitory factor. Regardless of underlying physiologic responses, the study of our cases to date has been from an etiologic and a therapeutic point of view, and an attempt has not been made to investigate the question of cortical excitability.

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* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Jackson, Hughlings: A Study of Convulsions, St. Andrews M. Grad. A. Tr. **3**: 162, 1870.

Certain general features concerning the 130 cases must be touched on. First, cases in this study have been gathered from records of the past ten years. They represent 4.1 per cent of patients who have presented themselves for diagnosis and treatment, in most instances referred by their family physicians, who have recognized their case as neurologic problems. The original survey included some 175 cases, but in view of certain questionable features brought out either from a careful history or from a neurologic examination, 45 were discarded. These questionable features were not the etiologic factors but concerned the exact character of the attacks both from a subjective description and, in a few instances, from objective observation. Hence the cases have been selected as those presenting definite localizing features, either motor or sensory in character, whose manifestations have followed a definite march. There have occurred two or more like attacks in every case. Although the motor attacks have been complained of as "twitchings," " jerkings," "quiverings," "drawings," "stiffenings," and so on, after careful questioning the descriptions could all be placed under the common term of "jerkings." As for the sensory attacks, they embrace a wide range of paresthesias, such as "numbness," "pricklings," "tinglings," "burning," "needling," and "lightning," but were most constantly a subjective "loss of feeling." While a true jacksonian attack carries the idea of a localized seizure without a loss of consciousness, the term is so frequently used to indicate any convulsive seizure with localizing features that one must usually modify a description before a completed picture of a case may be obtained. That there occurred generalized convulsions either before, after, or independent of, the localized attacks in 28.4 per cent of this series should not be misleading, for of the fourteen cases in which infection seemed to be the etiologic factor, six had the onset of the acute illness ushered in with a generalized convulsion. The focal attacks occurred at variable periods of time after subsidence of the acute illness. Thirteen of the thirty-two patients with tumor of the brain had one or more generalized convulsions at some period in the history of their illness. In one instance there were generalized seizures fourteen years before independent localized attacks appeared. In ninety of the cases, unconsciousness occurred at some time during the history of the illness. In 69.2 per cent of the cases, unconsciousness followed the generalized convulsions. There were only two cases in which there were generalized jerkings without a loss of consciousness, and thirty-five cases (29.6 per cent) which showed a loss of consciousness associated with the localized attacks. This leaves seventy-three patients who did not have generalized convulsions and forty who at no time had a loss of consciousness.

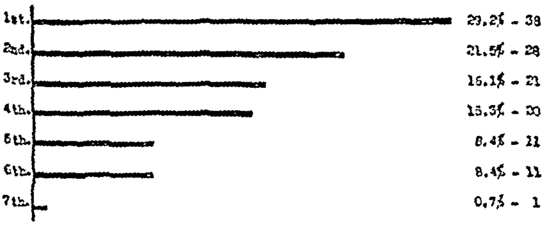

Chart 1.—Epileptiform attacks by decades in 130 cases.

It is an interesting coincidence that sixty-two cases should have occurred as right sided seizures and the same number as left sided phenomena. The remaining six cases showed both right and left sided attacks; this statement may be confusing unless clarified by citation of the following case:

> A male patient had had attacks of "freezing," beginning always in the right side of the face, spreading into the right arm and then down the right side of the body and into the right leg. These attacks occurred several times daily, lasting from two to three minutes over a period of eleven months. Then there began motor attacks of jerkings of the fingers of the left hand, spreading to the wrist and up the arm. There were four such motor attacks over a period of three weeks. A right temporofrontal cyst was resected at operation, and since that time there have been no further attacks on either side.

Without theorizing as to the cause of the bilateral attacks, we cite this case merely as one of 6 of the 130 cases which presented bilateral jacksonian features.

There were eighty-four cases in which the attacks were purely motor and only nine which were solely sensory. Twenty were sensorimotor; that is, the sensory attacks were followed immediately by motor manifestations. In nine of the cases the motor features immediately preceded the sensory attacks. In seventeen instances there were motor and sensory attacks occurring simultaneously. In one case there occurred sensory attacks over a period of eight years before there was any evidence of motor irritability. This was a case of brain tumor involving the right parietal lobe.

The various factors that seem to be responsible for the localizing convulsions in the cases studied were as follows: brain tumor, 24.6 per cent; trauma (accident), 20 per cent; trauma (birth), 14.6 per cent; postinfection, 10.7 per cent; cerebral atrophy, 5.2 per cent; syphilis, 5.3 per cent; palsies of childhood, 3.8 per cent; arteriosclerosis, 3 per cent; a miscellaneous group, 3.8 per cent; undetermined etiology, 8.4 per cent. There were ninety-one males and thirty-nine females. It is strikingly true that in each group the males outnumbered the females, regardless of causative factors.

BRAIN TUMOR

One cannot but be impressed with the relatively high incidence of brain tumor, which occurred as a verified lesion in 32 of the 130 cases. The tumors were present in the various decades of life, but the greatest number were in patients from 13 to 49 years of age. The infrequency of localized convulsions in children with intracranial neoplasms is due to the fact that the greatest majority of tumors of childhood are located below the tentorium. Although cerebral tumors occur in children, such a lesion is infrequent as compared to those occurring in the posterior fossa. That cerebral neoplasms constitute the largest group in this study might be open for question, the possibility being that these cases were selected from a neurosurgical service. But it happens that this neurosurgical service embraces a rather wide range of neurologic problems.

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[2] Parker, H. L.: Historical Note on Jacksonian Epilepsy, Jour.-Lancet **49:** 107 (March 1) 1929.

[3] Cushing, Harvey: A Note upon the Faradic Stimulation of the Postcentral Gyrus in Conscious Patients, Brain **32:** 44, 1909. Head, Henry: Speech and Cerebral Localization, ibid. **46:** 355 (Nov.) 1923. Sittig, Otto: A Clinical Study of Sensory Jacksonian Fits, ibid. **48:** 233 (June) 1925. Cadwalader, W. B.: Significance of Jacksonian Epilepsy in Focal Diagnosis of Cerebral Lesions, Arch. Neurol. & Psychiat. **14:** 358 (Sept.) 1925. Dusser de Barenne, J. G.: Experimental Researches on Sensory Localization in the Cerebral Cortex of the Monkey, Proc. Roy. Soc., B. **96:** 272, 1924. Guillain, G., and Thévenard, A.: Considérations sur l'épilepsie Bravais-Jacksonienne extra-corticale, Ann. de méd. **24:** 58 (June) 1928.

Of the thirty-two cases of tumor, eighteen were on the right side and fourteen on the left. There were sixteen located in the parietofrontal area, eight in the temporofrontal, four in the parietotemporal and four entirely parietal. There were two tumors completely subcortical in location, one an oligodendroglioma and the other a cystic astrocytoma. The remaining thirty were either partially or completely cortical in location. Eighteen of these were astrocytomas, four gliomas of undetermined type, two plexiform angiomas, one a lymphangioma, one a neuroblastoma, three were fibroblastic tumors of meningeal origin, and one was a gumma.

Spiller [4] described the character of the attacks which occurred in subcortical lesions as tonic in nature and accompanied by paresthesias. In both of the subcortical tumors there were sensory phenomena. In the case of the cystic astrocytoma there occurred a numbness of the side of the face with a drawing of the head to the same side, followed by a jerking of the left side of the mouth, which spread to the lids of the left eye. In the other subcortical tumor the clonic motor manifestations were preceded by a burning pain on the same side of the body.

Bailey and Cushing [5] in their studies of the tumors of the glioma group called attention to "occasional focal epilepsy of long standing" in cases of cerebral astrocytomas in two cases without pressure symptoms. It is therefore of particular interest that, of the thirty cases in this series in which the tumors involved the cortex, eighteen were astrocytomas, which are relatively benign tumors.

The lymphangioma, which was in an infant, 18 months of age, involved also the eye and scalp on the side of the cerebral lesion. This child was one of the two patients in the brain tumor group who had positive Wassermann reactions. The other case in which the blood Wassermann reaction was positive was one of the plexiform angiomas of the parietofrontal region in a girl, 15 years of age. These findings are of interest in view of the fact that the one case of gumma did not present a positive Wassermann reaction on either the blood or the spinal fluid.

In seventeen of the cases there were no generalized convulsions at any time during the history of the illness. Of these seventeen cases, nine showed at some time, associated with jacksonian attacks, a loss of consciousness. This unconsciousness varied in different cases from several minutes to several hours and occurred at times before the attacks, during the attacks and, in some instances, after all irritative phenomena had subsided. In fourteen instances there was an increasing severity of the attacks. Only seven patients gave a history of increasing frequency, and in four cases there was a history of a diminution in the number of seizures as well as in their severity.

Of the thirty-two cases, twelve (37.5 per cent) gave no evidence of increased intracranial pressure. This statistical fact is of particular value since it emphasizes the possibility of intracranial neoplasm in cases presenting evidence of localized neurologic manifestations without symptoms and findings of general increased intracranial pressure. Four of these twelve cases did not give any objective neurologic evidence of a gross intracranial lesion.

In those cases presenting other neurologic manifestations, a facial weakness on the side opposite to the side of the tumor was noted in fifteen of the thirty-two cases. This was the most constant neurologic finding. Roentgen studies were of diagnostic value in thirteen cases. In five cases there were calcium deposits in the lesion, in one there was a partial destruction of the sella turcica, and in three there were general convolutional atrophy changes. Ventricular air studies were done in four cases, in three of which the lateral ventricles were distorted by the tumor, and in one the ventricles were normal in all respects. This was a case of cortical glioma without positive neurologic findings, the exploration being done after observation of a characteristic jacksonian attack.

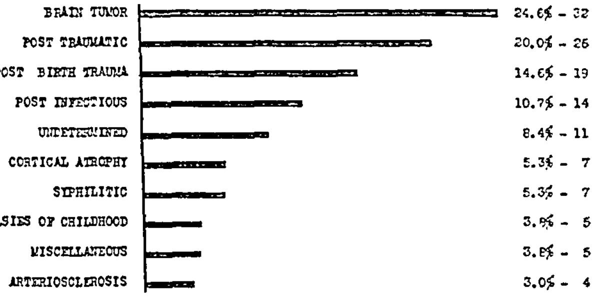

Chart 2.—Analysis of 130 cases (91 males, 39 females) presenting focal epileptiform manifestations.

In twenty of the cases the first symptom was a jacksonian attack; in the other cases the interval from the onset of symptoms to the first localized attack averaged sixty-two months, this average being high on account of the fact that in two cases there were subjective symptoms twelve years before the localized seizures occurred. The usual interval was from three to twenty-four months. The average period of time elapsing between the onset of localized motor or sensory phenomena and the first examination of the patients was thirty-four and nine-tenths months. The rather surprising length of time which elapsed between the onset of symptoms and the final diagnosis is evidence of the fact that the responsibility of brain tumor in causing localized convulsive seizures is not properly appreciated. Such a chronicity of symptoms is further evidence that the majority of tumors causing such localized phenomena are of a relatively benign character.

TRAUMA (ACCIDENT)

The trauma group constitutes the next largest number of the 130 cases. Twenty-six showed localized convulsions which were apparently the result of cerebral injury. There were three females and twenty-three males in this group. This corresponds to the well recognized greater incidence of trauma in men than in women. Twenty-one of the twenty-six cases occurred between the ages of 10 and 30 years. This is in keeping with the fact that these are the more active years of life, during which individuals are more liable to injury.

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[4] Spiller, W. G.: Subcortical Epilepsy, Brain 50: 171 (June) 1927.

[5] Bailey, Percival; and Cushing, Harvey: Tumors of the Glioma Group, Philadelphia, J. B. Lippincott Company, 1926.

The automobile (which is responsible for the greater number of present-day head injuries) was the causative agent in only three cases. On the other hand, injuries of a localized nature were responsible for the brain trauma in the majority of these twenty-six cases. This bears out the contention that a force of small mass and great velocity (such as a blow on the head with a hammer) produces a localized lesion, whereas a force of great mass and moderate velocity (such as a fall striking the head against the ground) produces generalized and often remote damage. Hence it is not surprising that in most instances trauma in these cases resulted from the blow of a lead pipe, bottle, bullet, baseball and, in one instance, a stab wound through the skull. The pathologic condition encountered in most of the fourteen cases in which operation was performed has been that of localized scarring of the cortex and in most cases associated thickened matted meningeal adhesions. In three instances, localized cystic formation with or without an underlying cicatrix was encountered. In two cases an organized subdural blood clot was present. In two cases there was a generalized increase in the amount of the subarachnoid fluid, and in these cases it seemed justifiable to conclude that there had been a general cerebral atrophy with a compensatory collection of fluid, this atrophy probably resulting from a generalized gliosis rather than from any localized trauma. Foerster and Penfield [6] have written particularly of this cicatricial pathologic type and it is their opinion that the scar tissue exerts a "vascular pull" which precipitates the attacks.

The interval between the time of injury and the onset of localized attacks was, with two exceptions, less than twelve months. In nine cases there was no appreciable time interval from the time of the accident until the attacks occurred. In one of the two cases in which the interval between injury and localized attacks was longer than twelve months, there occurred twitchings of the fingers of the right side, spreading to the hand and up the arm into the right side of the face, twelve years after a compound fracture of the skull. These attacks disappeared after the excision of a localized cerebral scar. In three cases there was a history of generalized convulsions, in two cases immediately following the accident and in one case associated with the jacksonian attacks. Including the unconsciousness associated with the generalized convulsions in the three previously mentioned cases, there were ten cases in which there occurred unconsciousness, usually following the localized jerkings.

There were two cases in which positive blood Wassermann reactions were obtained. One was a case of congenital syphilis, and this coincidence might lend support to the idea that trauma is not infrequently a precipitating factor and perhaps not the basic etiologic cause of epileptiform seizures.

Neurologic examination in the cases of trauma was of little value in every instance except in one case of subdural hematoma. In addition to a constant jerking of the right arm and hand, this case showed bilaterally choked disks, an inequality of the pupils, and pathologic toe responses on the side opposite the organized blood clot.

In seven of the cases, sensory symptoms of cortical origin were associated with the motor attacks. In every instance except one this cortical involvement indicated postcentral irritation, the one case being associated with a complete aphasia before the onset of the motor attacks.

TRAUMA (BIRTH)

There were nineteen cases in which the etiologic factor in the production of the attacks seemed to have been a definite brain injury at the time of birth. Nine infants had been delivered with forceps; three of these had lacerated scalps, and the others gave only a history of contusions. In three instances there was a history of a short precipitated labor with the use of solution of pituitary. In two instances the difficulties at the time of birth were the result of the mother's pelvic contractures. In two cases there was a history of induced labor because of impending uremia. In three cases there was a history of greatly prolonged labor. In six of the nineteen cases, resuscitation was necessary at the time of birth.

All these cases, with one exception, occurred in the first decade. This case may be open to question. The patient was 24 years of age, with an absolutely negative history, with the exception of forceps delivery after a long hard labor, and resuscitation after birth. He had developed slowly both mentally and physically, and at the age of 19 years began to have right sided motor attacks. An encephalogram was advised and refused. This case is open to criticism as falling into the birth trauma group, but as there was nothing else in the history or examination to account for the attacks it seems justifiable to class it as a case resulting from injury at the time of birth.

The pathologic condition encountered at operation in two of the cases was that of generalized cortical atrophy with thickened meninges and duro-arachnoidal adhesions. In one case in which operation was performed five days after birth, a tremendous subdural hemorrhage was found, resulting from a cortical vein torn where it left the cortex to enter the longitudinal sinus. This patient was the youngest of the 130 studied, being less than 48 hours old when localized jerkings were first observed.

POSTINFECTION

There were fourteen cases which had a definite history of acute febrile attacks with delirium, irritability, convulsions, etc., in which it was felt that the jacksonian seizures were the result of a definite cerebral inflammation. There were eight males and six females in this group. Nine of the cases occurred in the first decade. There were ten cases in which one or more generalized convulsions were associated with the acute febrile attack. The interval between the appearance of the jacksonian attacks and the acute illness was a period of several weeks, except in two cases. Of these two cases, one had a history of a febrile attack with generalized convulsions, which were followed by a hemiplegia that cleared up after several months; five years later localized motor attacks developed on the same side. The other case gave a history of generalized convulsions over a period of four years, which followed a severe attack of infectious parotitis with a residual blindness and deafness. The generalized convulsions subsided, and after a period of three years left sided attacks occurred. By microscopic study of tissue removed at the time of operation, this case was verified as being one of infectious origin. In ten instances the attacks occurred on the right side and in no case in which the patients were old enough to explain subjective symptoms was there any history of sensory attacks.

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[6] Foerster, O., and Penfield, W.: The Structural Basis of Traumatic Epilepsy and Results of Radical Operation, Brain 53: 99 (July) 1930.

CEREBRAL ATROPHY

There were seven cases in the cerebral atrophy group, occurring between the ages of 11 and 33 years. They have been classed as cerebral atrophy owing to the fact that there was a negative history for any type of trauma, infection or systemic disease, and there were no other neurologic manifestations than the focalized attacks. All these cases at operation showed a marked atrophy of the cortex, with a compensatory collection of cerebrospinal fluid. The interval between the onset of attacks and the operation varied from five months to eleven years. In only one instance was there any possible etiologic factor. This was in a man, aged 33, who had drunk a quart of whisky daily over a period of four or five years. This case showed by far the most marked collection of subarachnoid fluid. The others showed about the same cortical shrinkage, regardless of the duration of attacks. There were four left sided motor attacks, which in three instances were preceded by sensory symptoms of a localizing character. Two of the motor attacks were preceded by sensory phenomena. In none of these cases was there a history of generalized convulsions or a loss of consciousness.

SYPHILIS

There were seven cases of syphilis. In two cases there was a definite history of acquired lesions with supporting positive serologic studies. Of the others, all five were of congenital origin; this diagnosis was confirmed by laboratory studies. In one case, in which there was also a tumor of the brain, the positive blood Wassermann reaction was obtained on routine examination, the greater evidence in this case indicating a cerebral neoplasm. That the number of cases of syphilis should be so few is somewhat surprising. Yet, on the other hand, the number of brain tumors that have been treated for syphilis is just as surprisingly high, and it is quite possible that with antisyphilitic treatment many patients with jacksonian attacks have been relieved from their attacks and have not sought further medical advice.

CEREBRAL PALSIES OF CHILDHOOD

The five cases of cerebral palsies of childhood all had a history of a poor start in life. One patient weighed 3 pounds (1.4 Kg.) at birth, another was born after a seven months' pregnancy, and in every instance there was a delayed mental and physical development. Aside from the maldevelopment, three showed residual hemiparesis with other symptoms of pyramidal tract involvement. The localized convulsive seizures in every case involved the paretic side.

ARTERIOSCLEROSIS

There were four cases of cerebral arteriosclerosis, all of which occurred after the sixth decade. The diagnosis of these cases was based on the presence of a peripheral sclerosis, ophthalmoscopic examination and the exclusion of a possible brain tumor. In discussing this small group of cases, we must issue a warning against the exclusion of a cerebral neoplasm even in the presence of the vascular disease, as there occurred, in this series of 130 cases, 2 cases in which there was definite evidence of arteriosclerosis but which also showed symptoms suggesting intracranial neoplasm. In these two cases the diagnosis was confirmed by operation; in one instance there were none of the classic symptoms of increased intracranial pressure.

MISCELLANEOUS CAUSES

There were five cases which did not seem to fit into any etiologic group. The patients varied in age from 1 day to 55 years. The one case of the 1 day old infant showed a complete collapse of both lungs, and it was felt that the jacksonian attacks were due to a supervenosity of the right cerebrum. In the 55 year old patient the tentative diagnosis of Alzheimer's disease was made. In the third patient, a man, aged 50, the attacks were due to a cortical degeneration following vascular thrombosis. There was one case of acute infectious meningitis and one in which the jacksonian attacks occurred as postvaccinal encephalitic sequelae.

UNDETERMINED CAUSES

In a group of eleven cases with undetermined causes there were four in which the lesion was suspected of being a brain tumor, but in three cases further investigative studies or operative intervention was not carried out because of the refusal of the patient. In the fourth "tumor suspect" an encephalogram was done which showed a dilated ventricle on the side opposite the suspected cortical lesion and a filling defect of the ventricle on the same side. This case was never verified by operation, although exploration was advised. In a child, aged 22 months, who had attacks involving the left side following a sudden convulsion at 6 months of age, there was no history of any trauma or febrile illness. There is a possibility that this patient had a spontaneous intracapsular hemorrhage, as evidenced by the left hemiplegia that was present at the onset of the illness. In one individual, aged 57, who had right motor attacks over a period of fifty-two years and gave a history of having had some type of convulsions in early childhood, no definite etiologic factor could be accounted for. In a patient, aged 3 years, who had had right sided attacks for six months in which there was no history to account for the onset of the attacks, an encephalogram was made which gave normal findings. There was a very definite family history of epilepsy in three cases in young individuals in whom localized attacks without a loss of consciousness occurred. In one instance there was a history of delayed physical and mental development. This patient did not present any objective neurologic conditions and gave only a history of motor attacks which were relieved by spinal air injection, the roentgen studies of which gave normal results.

TREATMENT

The study of these cases has justified certain preconceived ideas concerning the treatment. It has long been our opinion as well as that of others who deal with the surgical problems of neurology that the greater number of patients with localized convulsive seizures should be given the benefit of an exploratory craniotomy. The benefits to be offered are, essentially, the removal of the causative lesion and, in cases in which there is no demonstrable gross pathologic condition, the employment of such procedures as will destroy the so-called epileptic zone. This zone can be easily demonstrated by faradic stimulation and its destruction carried out in two or three different ways. No discussion of the jacksonian cases in which operation was not performed will be dealt with in this communication. The treatment of these cases was for the most part medical, except for certain orthopedic procedures in four instances in which there were residual palsies. The treatment of the syphilitic cases has been specific, and in the cases of cerebral arteriosclerosis general measures have been employed. In the remaining cases a strict dietary antiepileptic regimen supplemented with phenobarbital has been prescribed.

Sixty-nine craniotomies were advised and sixty-two were performed. Three ventricular and four spinal air injections were done. Of the sixty-two craniotomies, twenty-eight were in the tumor cases and fourteen were done for the excision of thickened adherent meninges with or without an underlying cortical cicatrix. In eight cases, destruction of the demonstrable "epileptic area" was done, six cases being treated with the injection of alcohol and two with electrical coagulation. There were four cases of hemorrhage; two of recent origin and two in which there was an organization of the blood clot. Exploration was done in eight cases, with nothing further than exposure of the cortex.

Sixty-Two Craniotomies in Cases Presenting Localized Epileptiform Convulsions

Operation	Number	Type	Results
For removal of tumors	28	22 gliomas	13 living and free from attacks; average, 38.3 months 5 survived, free from attacks; average, 28.8 months 4 died following operation
		3 meningiomas	2 living; attacks continuing; average, 52 months 1 died suddenly 12 months after operation
		2 angiomas	1 lived 3 months; 1 lived 21 months; attacks continued
		1 gumma	1 living, attacks continuing, 12 years
Cortical excision	14	8 traumatic	8 living and free from attacks; average, 51 months
		3 infectious	3 living; one or more attacks; average, 62 months
		3 atrophy	1 lived 18 months free from attacks; died 4 years later 2 died following operation
Cortical alcohol injection	6	4 traumatic	2 living and free from attacks; average, 38 months
		2 atrophy	4 living; one or more attacks; average, 7.5 years
Cortical coagulation	2	1 traumatic 1 atrophy	2 living and free from attacks; average, 9 months
Removal of blood clot	4	4 traumatic	3 living and free from attacks; average, 55 months 1 died following operation
Exploration	8	4 atrophy	1 living and free from attacks, 36 months 2 living; attacks continuing; average, 5.5 years 1 died following operation
		1 congenital syphilis	1 living; attacks continued for 3 years; generalized convulsions past 4 years
		1 no gross lesion	1 living and free from attacks 7 months
		1 flattened convolutions	1 living; occasional attack; 3 years
		1 hyperemic cortex	1 living and free from attacks 10 months

In twenty-two of the tumor cases in which operation was performed, gliomas were found. Thirteen of these patients are living and free from attacks. The longest period of time elapsing from operation is in one case seven years. The average period of time elapsing since operation is thirty-eight and three-tenths months. There was an average of twenty-eight and eight-tenths months from the time of operation to death in five cases, in one instance the lapse of time being five and one-half years. In no instance in these five cases was there a recurrence of the jacksonian attacks after operation. One of the deaths was from meningitis complicating an acute mastoiditis. There were four postoperative deaths: one patient died twelve hours after an emergency decompression which had been carried out under artificial respiration, two died of shock and one died of an intraventricular hemorrhage.

Of the three patients with meningeal fibroblastoma, one died rather suddenly one year after operation. The other two are living, one five years after operation and the other four years. In all three of these cases as well as in the case of gumma, the tumors were completely removed. In the instance of the gumma, the removal was done twelve years ago.[7] In all four of these cases there has been a distressing persistence of the localizing seizures, although a complete removal in every instance was possible. This disturbing feature suggests the justification of cortical excision or electrocoagulation of the damaged underlying brain at the time of removal of the tumors.

The two cases of plexiform angioma which were exposed at operation, although improved, continued to show localized attacks. In one case in which high voltage roentgen treatment was given, improvement in the severity and frequency of attacks was greater than in the other. This patient died suddenly three months after operation, and a postmortem examination was permitted. A collapsed lung seemed to have been the immediate cause of death. Examination of the brain was of interest, in view of the roentgen treatment, in that the small capillary cortical vessels, which were extremely numerous at the time of operation, were barely noticeable. This observation, together with the diminution in the character of the attacks in this case, might suggest the trial of radiation therapy in like cases which present no evidence of increased intracranial pressure.

Of the fourteen cases in which excision was done at the time of exploration, eight were posttraumatic, three postinfectious, and in three there was no cortical atrophy or any other gross pathologic lesion. Two patients died of postoperative complications: one of surgical shock and one of a meningitis. The others have been free from attacks except in four instances. The average lapse of time since operation has been four and one-fourth years. Of the four patients in whom there have occurred attacks at some time since operation, one has had "an occasional, much lighter attack," and one was free for a period of four years, after which there occurred several attacks, which have been controlled for six months with the administration of phenobarbital. In one case, after an eighteen months period of freedom following operation there developed generalized convulsions which continued until the death of the patient, some four years after operation. This is the only death other than the two occurring immediately after operation. In the fourth instance in which attacks occurred after operation, the patient two years after operation had one attack during a febrile illness, and since that time no other attacks have occurred during the past four years.

There were four cases in which hemorrhage was found at operation. The one patient with birth trauma did not rally from the procedure, which was carried out under artificial respiration. In the other three cases, which were the result of trauma, the patients are all living and free from attacks, a period of three, five and six years, respectively, having elapsed since the time of operation.

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[7] This patient was seen by us six years after being operated on in another clinic.

Several years ago injection of alcohol into the so-called epileptic zone was advocated, the procedure being for the most part electrical stimulation of the area, with the production of a "typical attack." With the production of this attack the responsive stimulated area was injected with 95 per cent alcohol. Six cases were treated with this method, four of the cases following head injuries. These four cases at the time of operation showed no gross pathologic condition. The other two cases were instances of cortical atrophy of undetermined etiology. The results following the cortical injection of alcohol were in no instance discouraging. One patient was free from attacks for four months, after which there was a recurrence, and the attacks were minimized with the administration of phenobarbital. In two cases, attacks have not occurred in more than three years. These patients are also on phenobarbital. In the other three cases there have been occasional attacks, regardless of all medication and dietary measures. With Penfield's[8] notable contribution to cerebral scar formation, the advisability of alcohol injection into the cortex was opened to question and, as there were no absolute cures without supplementary medication, other methods of cortical destruction were sought.

With the introduction of the electrosurgical unit into cranial surgery it was felt that less harmful results to the brain itself were to be obtained in destroying the so-called epileptic zone by electrocoagulation. There were two cases of the sixty-two craniotomies in which the "epileptic area" was thus destroyed, one in a child who had had cerebral damage at the time of birth and who has been free from attacks for eleven months, and the other in an adult with tremendous cortical atrophy of possible alcoholic etiology. This patient has been free from attacks for seven and one-half months.

CONCLUSIONS

1. One hundred and thirty cases presenting localized convulsive attacks either motor or sensory in character have been analyzed.

2. In regard to the underlying etiologic factors, the cases fall into the following groups: (1) brain tumor, 24.6 per cent; (2) trauma occurring after birth, 20 per cent; (3) birth trauma, 14.6 per cent; (4) postinfection, 10.7 per cent; (5) cerebral atrophy of undetermined cause, 5.2 per cent; (6) syphilis, 5.3 per cent; (7) palsies of childhood of undetermined etiology, 3.8 per cent; (8) arteriosclerosis, 3 per cent; (9) miscellaneous causes, 3.8 per cent; (10) undetermined etiology, 8.4 per cent.

3. There were ninety-one males and thirty-nine females in the group.

4. In sixty-nine of the cases exploratory craniotomy was advised, and in sixty-two it was performed.

5. The treatment in the cases in which operation was performed consisted, in general, of the removal of tumors, the excision of cortical cicatrix, and the destruction of the so-called epileptic zone if no gross lesion was demonstrated.

6. The results in the cases in which operation was performed seem to support the opinion that exploratory craniotomy is a justifiable procedure in all cases presenting localized epileptiform seizures in which the possibility of uncovering a removable lesion or destroying a demonstrable epileptic zone exists.

158 Forest Avenue N. W.

ABSTRACT OF DISCUSSION

Dr. Wilder Penfield, Montreal: When one studies the cases of so-called idiopathic epilepsy or generalized epilepsy, a large percentage of them prove to belong in the group of focal epilepsy; and it seems to me that Jackson's original conception should be expanded now to include focal epilepsy. In this regard, one should not demand that the movements begin in the fingers or feet for the case to be considered as an instance of *jacksonian or focal epilepsy. The cases that result from an* irritation in the frontal lobe start, as is known, with a deviation of the eyes and head, and usually the body, to the opposite side. This deviation is not clonic. When the irritation arises low down in the temporal lobe, the attack begins with swallowing or movements of the lips and the tongue; when it is a little farther posterior in the temporal lobe, the attack begins with the turning of the head and eyes also to the opposite side accompanied by some type of sensory aura. Further, if the irritation begins in the occipital lobe the type of sensory aura, such as lights in the opposite field, betrays the initiation of discharge. These cases are as much focal as the typical cases of jacksonian epilepsy. I was much impressed by the high percentage of brain tumors in this list; namely, 24 per cent. I take it that if Dr. Fincher included his cases of injuries with the frank traumatic cases, he would raise the percentage of that group to 34, which would then exceed the frequency of brain tumor. In my own experience, any case of epilepsy which begins after the age of 30 is more apt to be caused by a brain tumor than anything else. I wonder what the experience of others is in this regard. My short experience is the same as the author's in regard to meningeal fibroblastomas. If these tumors have been the cause of epileptic seizures, their removal is apt not to give relief to the seizures, whatever the explanation of this failure to relieve the seizures may be. That thirty of these tumors which produced convulsions should have been on the surface of the cerebrum and none of them, I take it, in the cerebellum, is also of great interest. *This accords with the observations made* by Woltman at the Mayo Clinic, and also with Jackson's original conception, that epilepsy is most usually caused by an irritation beginning in the cerebral gray matter.

Dr. George W. Hall, Chicago: It appears to me that the neurosurgeons are not giving cognizance to one important factor in connection with these epileptiform seizures; namely, when such seizures of a jacksonian character do occur following injury, there is in the vast majority of cases an hereditary history, which, if sought for, can be obtained. The author today has not gone further than to bring out the actual pathologic factors in those cases which he has reported. It is my opinion that if the social service department could send a visitor to the home and interview the relatives of these patients, evidences of hereditary factors would be obtained, as I have stated, in the great majority of cases.

Dr. Edgar F. Fincher, Jr., Atlanta, Ga.: I shall answer Dr. Hall's question first by saying that there were five cases classed as cerebral palsies of childhood, in all of which the patients had a history of a rather poor start in life; one weighed 3 pounds (1.4 Kg.) at birth, another was a seven months' pregnancy; in every instance there was delayed mental and physical development. In three other cases there was a very definite family history of epilepsy, insanity or some nervous disease. Referring to Dr. Penfield's question, I think that if there is one thing that might be gained from such a study as this it is that in people past the second decade of life brain tumor is more likely to be the cause of jacksonian attacks. I would like to show in the second slide one feature in the treatment of the nontumor cases. In one case of birth trauma in a youngster, aged 2 years, and in a second case, a possible alcoholic addict, stimulation of the cortex in the adult was done under local anesthesia, and in the child, the so-called epileptic zone was demonstrated with the electrosurgical unit. Many are familiar with the recent introduction into neurologic surgery by Drs. Cushing and Bovie of the electrocoagulation unit. In these two cases the coagulation needle was placed in the cortex for a distance of not less than 1.5 cm., and the entire epileptic zone was destroyed by coagulating the cortex. These two patients are living, free from attacks; neither are on any form of medication. They have been free for an average of nine months.

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[8] Penfield, W.: The Mechanism of Cicatricial Contraction in the Brain, Brain 50: 499 (Oct.) 1927.

A FAMILIAL EPIDEMIC OF ACUTE DIFFUSE GLOMERULONEPHRITIS

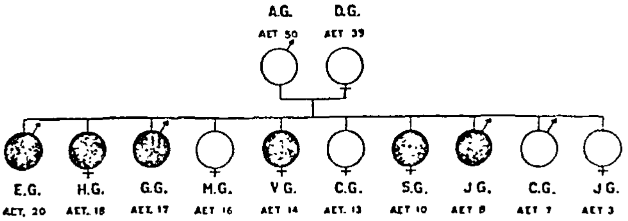
RELATION TO THE PATHOGENESIS OF THE DISEASE *

A. CARLTON ERNSTENE, M.D.
AND
GEORGE P. ROBB, M.D.
BOSTON

Epidemic occurrence of acute diffuse glomerulonephritis in civil life is rare, and only a few instances [1] have been reported in which several members of a family have developed the disease simultaneously or in close succession. The familial epidemic described in this paper affected six of ten children and is of interest because the cases clearly illustrate certain features of the pathogenesis of the disease. The chart gives a schematic representation of the family and indicates the members involved in the epidemic.

REPORT OF EPIDEMIC

In the second week of January, 1928, T. G., aged 8, an American born schoolboy of Greek parentage, became ill with fever, mild sore throat, coryza, headache and severe general malaise. These symptoms lasted six days. During the following seven weeks, there developed in three sisters and two brothers, successively, a similar acute infection of the upper respiratory tract, which lasted from three to seven days. In each individual, hematuria and edema appeared from seven to twelve days after the onset of the illness. None of the patients presented evidence of scarlatina, and three had had that disease several years earlier. None had had a previous attack of acute nephritis. There was no familial history of allergic conditions, such as hay-fever, asthma, food sensitivity and urticaria. The patients were treated at home for from one to six weeks and then successively entered the hospital because of persistence of symptoms and signs of nephritis. At the time of admission to the hospital, edema was present in only two subjects, but the urine of all contained albumin, red blood cells and casts of various kinds. The nonprotein nitrogen content of the blood was elevated in one patient and at the upper limit of normal in another. None of the others presented evidence of renal insufficiency. The arterial blood pressure was within the limits of normal in all.



Diagrammatic representation of family. The individuals who had acute diffuse glomerulonephritis are indicated by the black symbols.

Cultures from the throat showed many colonies of *Streptococcus viridans* in all patients. Three of the subjects also showed *Streptococcus hemolyticus* and three *Bacillus influenzae* (table 1). Cultures of the urine remained sterile in all.

In the remaining six members of the family, physical examination and urinalysis did not reveal any evidence of nephritis. A short time before the onset of the illness in the first patient, the two youngest children had had "colds" with fever and severe prostration and had been confined to bed for approximately two weeks. The youngest child had had a persistent purulent nasal discharge since that time. Cultures of this material showed pneumococci to be the predominating organism, although a few colonies of *Streptococcus viridans* also were obtained. There had been no recent acute infections of the upper respiratory tract in the other members of the family.

Table 1.—*Results of Throat Cultures*

Subject	J. G.	S. G.	H. G.	G. G.	E. G.	V. G.
Streptococcus viridans........	+	+	+	+	+	+
Streptococcus hemolyticus....	0	+	0	0	+	+
Bacillus influenzae............	0	+	+	0	0	+

The patients remained in the hospital for from six weeks to one year, and in each the urinary observations showed a return to normal before the time of discharge. In December, 1930, over two and one-half years after the onset of nephritis, physical examination and urinalysis did not show any abnormalities in four of the patients, including the subject who had had nitrogen retention when admitted to the hospital. In the other two patients, physical examination was negative but the urine contained a slight trace of albumin and a few red blood cells. The nonprotein nitrogen content of the blood and the phenolsulphonphthalein excretion were within the limits of normal. These two subjects were considered to be in the latent stage of glomerulonephritis. A summary of the cases is given in table 2.

COMMENT

Two forms of acute glomerulonephritis are generally recognized: (1) acute diffuse glomerulonephritis and (2) acute focal glomerulonephritis. Both forms commonly result from an acute infection. Several considerations indicate that the acute nephritis of our patients was of the diffuse type. Chief among these is the occurrence of edema in all subjects, and in one the signs of renal insufficiency. The absence of organisms in the urine of the patients is further evidence, for acute diffuse glomerulonephritis is not caused by actual bacterial invasion of the kidneys.[2] The fact that signs of pathologic changes in the kidneys appeared at a perceptible interval after subsidence of the acute infection is also characteristic of diffuse glomerulonephritis.

Acute focal glomerulonephritis, in contradistinction to acute diffuse glomerulonephritis, develops at the height of an acute infection and is due to direct action of micro-organisms on the kidneys. The organisms usually are present in the urine and in the renal lesions at necropsy. The condition is not accompanied by edema and only rarely causes renal insufficiency.[3]

The similarity of the initial acute infection in all our patients indicates that the infections probably were caused by the same type of micro-organism. The development of the illness successively in various members of the family suggests, further, that the causative organism had been transferred from one individual to another. Whether the earlier illness in the two youngest children was due to the same agent but for some reason was not followed by the development of acute nephritis could not be determined, although the duration of the illness and the degree of accompanying prostration is suggestive.

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* From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital; the Medical Research Laboratories, Beth Israel Hospital, and the Department of Medicine, Harvard University Medical School.

[1] Eason, J.; Smith, G. L. M., and Buchanan, G.: Hereditary and Familial Nephritis, Lancet **2**: *639* (Sept. *27*) *1924*.

[2] Longcope, W. T.: The Pathogenesis of Glomerular Nephritis, Bull. Johns Hopkins Hosp. **45**: *335* (Dec.) *1929*.

[3] Fishberg, A. M.: Hypertension and Nephritis, Philadelphia, Lea & Febiger, 1930.

In the great majority of cases of acute diffuse glomerulonephritis, the primary infection is of streptococcal origin. Longcope and his associates[4] obtained streptococci of the β type (*Streptococcus hemolyticus*) from foci of infection in twenty-two of thirty-two patients with acute or subacute glomerulonephritis and streptococci of the α type (*Streptococcus viridans*) in four patients of the series. In our patients absolute proof as to the identity of the causative micro-organism could not be obtained, but the isolation of large numbers of streptococci of the viridans type from the throat cultures of all six subjects and the presence of *Streptococcus hemolyticus* in three individuals is of considerable significance. The presence of β hemolytic streptococci in one half of the cases suggests that earlier bacteriologic studies might have shown this organism in all subjects.

Table 2.—*Summary of Cases*

Subject	Acute Infection of the Upper Respiratory Tract		Interval Between Onset of Primary Infection and		Observations on Admission to Hospital											State of Nephritis, December, 1930
						Arterial Pressure		Urinalysis								
	Date of Onset, 1928	Duration, Days	Appearance of Nephritis, Days	Admission to Hospital, Days	Edema	Systolic Mm. Hg	Diastolic Mm. Hg	Color	Specific Gravity	Albumin	Red Blood Cells	White Blood Cells	Casts	Phenolsulphonphthalein Excretion, per Cent	Blood Nonprotein Nitrogen, Mg. in 100 Cc.	
J. G.	1/10±	6	10	32±	+	100	50	Smoky	1.015	Slight trace	Very many	Few	Hyaline, granular and erythrocyte	70	24	Latent
S. G.	1/17±	7	10±	28±	0	100	74	Red	1.028	Trace	Very many	Many	Hyaline, granular, epithelial cell and erythrocyte	90	24	Latent
H. G.*	1/28	3	7	32	0	126	68	Straw	1.026	Slight trace	Few	Few	Hyaline and granular	60	28	Healed
G. G.*	2/15	5	7	30	0	118	60	Smoky	1.009	Large trace	Very many	Few	Granular, epithelial cell and erythrocyte	30	70	Healed
E. G.	2/18	6	12	27	0	108	72	Cloudy	1.028	Slight trace	Many	Many	Hyaline, granular and erythrocyte	65	38	Healed
V. G.	3/ 2	5	9±	17	+	120	80	Cloudy	1.018	Trace	Very many	Many	Hyaline, granular, epithelial cell and erythrocyte	60	30	Healed

* Permission to study these patients was granted by the authorities of the Robert B. Brigham Hospital.

The hypothesis that acute diffuse glomerulonephritis results from the development of an allergic state during the process of immunization to the primary infection is widely held at present,[5] although experimental proof has not been obtained. Schick,[6] who first proposed this theory, directed attention to the similarity between the interval from the onset of scarlatina to the appearance of acute diffuse glomerulonephritis and the interval between the administration of horse serum and the development of serum sickness. In our patients the symptoms and signs of acute nephritis appeared from seven to twelve days after the onset of the acute infection of the upper respiratory tract. The length of this interval may be considered additional clinical evidence of the rôle of allergy in the pathogenesis of acute diffuse glomerulonephritis.

Allergic conditions, such as hay-fever, asthma, food sensitivity and urticaria, are often familial. The rare occurrence of familial epidemics of acute diffuse glomerulonephritis may be due to the fact that a familial tendency to this type of allergy is uncommon or that many individuals possessing the allergic tendency escape infections which would become the source of the nephritis-producing allergen.

SUMMARY

1. A familial epidemic of acute diffuse glomerulonephritis not due to scarlatina is recorded.

2. Eight of ten children successively developed an acute infection of the upper respiratory tract and, in six, symptoms and signs of acute diffuse glomerulonephritis appeared during convalescence.

3. The interval elapsing in each case between the onset of the acute infection and the appearance of nephritis supports the hypothesis that acute diffuse glomerulonephritis results from the development of a state of hypersensitiveness to the primary infection.

4. Although cultures from the throats of all subjects yielded streptococci, absolute proof as to the precise identity of the organism causing the primary infection could not be obtained.

330 Brookline Avenue.

Bacteriologic Content of Maxillary Sinus.—There is a noticeable paucity of literature relative to the bacteriologic content of the maxillary sinus. With but few exceptions the literature teaches that the normal maxillary sinus or antrum of Highmore is sterile or free from bacteria. Torne, in 1903, demonstrated that healthy accessory sinuses of persons who had been dead over two hours were sterile. Lewis and Turner, in 1905, concluded after much investigation that the healthy accessory sinuses were probably sterile. Skillern, in 1912, examined post mortem the antrums of one hundred persons who died from tuberculosis, and he came to the conclusion that in health the sinuses were free from bacteria.—Balmer, F. B.: The Relation of Clinical to Bacteriologic Observations in Normal and in Diseased Maxillary Antrums, *Arch. Otol.* **14**:440 (Oct.) 1931.

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[4] Longcope, W. T.; O'Brien, D. P.; McGuire, J.; Hansen, O. C., and Denny, E. R.: Relationship of Acute Infections to Glomerular Nephritis, J. Clin. Investigation **5**:7 (Dec.) 1927.

[5] Longcope (footnote 2). Fishberg (footnote 3).

[6] Schick, Béla: Die Nachkrankheiten des Scharlach, Jahrb. f. Kinderh. **65**:132, 1907.

Clinical Notes, Suggestions and New Instruments

RETENTION OF URINE DUE TO CYST OF THE PROSTATE

H. G. Hamer, M.D., Indianapolis

Dr. S. E. J., aged 43, came for consultation, complaining of difficulty of urination. Ten days before, he had had retention of urine, necessitating catheterization. Following this first catheterization he was able to void but could not empty his bladder satisfactorily and had therefore catheterized himself several times daily. The urine was amber in color, slightly cloudy, and acid; the specific gravity was 1.026, urea 2 per cent; tests for albumin and for sugar gave negative results; pus and blood cells were present in moderate degree.

On examination the patient was found to have 3 ounces of residual urine. No obstruction to the passage of a catheter was encountered. The prostate was swollen, tense and tender.

He was directed to pass the catheter as often as necessary for comfort and to use a hot rectal douche twice a day. After the acute tenderness of the prostate subsided, massage was given, but this gave little relief. After a month he reported some improvement but was still unable to empty his bladder. The urine was clear and the phenolsulphonphthalein test was 65 per cent for the first and 10 per cent for the second hour, a total output of 75 per cent for 2 hours.

Cystoscopic examination disclosed a rounded tumor springing from the anterior margin of the vesical orifice. This tumor was about 1.5 cm. in diameter, of smooth and shining surface, and on manipulations of the cystoscope seemed to be soft. With the d'Arsonval current a groove was burned over the surface of the tumor. During the application of the current the tumor collapsed, with the escape of fluid. The tip of the electrode was carried into the cavity of the cyst, which was moderately burned. Following this treatment the retention of urine was relieved. When last seen, six months later, the patient reported that he was entirely free from symptoms.

The foregoing case, which under some circumstances might have called for a radical operation, shows the possibility of relief of similar conditions by fulguration alone.

1711 North Capitol Avenue.

DERMATITIS OF THE UPPER EYELIDS DUE TO THE USE OF A "HAIR TONIC"

Lester Hollander, M.D., Pittsburgh

Mrs. S. T. B., aged 29, an American housewife, was referred to me because of a severe dermatitis of the right upper eyelid of six weeks' duration and a milder inflammatory involvement of the left upper eyelid of a few days' duration.

The swelling and redness were so marked on the right upper lid that the patient was unable to open her eye. The involvement of the left upper eyelid was sharply outlined, covering about one third of the lid area, with a fine erythema and a shiny somewhat tense skin surface.

The itching, burning and discomfort were very marked.

The outstanding features of her history were as follows:

1. This was her first attack.
2. The condition was always much worse in the morning.
3. She sleeps on her right side, burying her face in a bolster.
4. There was nothing new in her home or in her bedroom.
5. She does not use cosmetics.
6. She was not in contact with plants.

It is apparent from the history that I had to look for some substance or agent which the patient had been using for the first time about six weeks ago, which came in contact with her especially at night.

As I got no help from the patient, I went over the usual procedures which are preparatory to retiring and found that six weeks ago she bought a bottle of "Wild Root" hair tonic, which she used for a few days only, however. I almost gave up this lead when I found that she occupied a double bed with her husband, that they used an elongated single bolster as headrest, and that her husband had been using this same "Wild Root" hair tonic since she discontinued using the preparation. The bolster cover was the medium of transmission: i. e., from the scalp to the bolster cover, from the bolster cover to the closed upper eyelid.

Shampooing the head of the husband and wife and discontinuing the use of the bolster and the "Wild Root" hair tonic brought about the recovery of the patient.

631 Jenkins Building.

[Editorial Note.—According to information furnished by the Bureau of Investigation, Wildroot Hair Tonic was originally known as "Wildroot Dandruff and Eczema Cure" and, later, as "Wildroot Dandruff Remedy." It was analyzed by the late Dr. Harvey W. Wiley, who reported in his book "1001 Tests," published in 1916, that the stuff contained arsenic and some phenolic body, probably resorcin, while there was a trace of alkaloidal material too small for identification. It contained 40 per cent of alcohol, which was declared on the label. In 1924, the Connecticut Agricultural Experiment Station published in its report by Dr. E. M. Bailey the statement that analysis of the Wildroot Hair Tonic disclosed the presence of 23 mg. of arsenic per hundred cubic centimeters. In the special article by Dr. Harold N. Cole entitled "Investigation of Injuries from Hair Dyes, Dyed Furs and Cosmetics," published in The Journal, Feb. 5, 1927, p. 397, there was reported one case of injury from the use of Wildroot.]

TOXIC CIRRHOSIS OF THE LIVER FROM "OXYL-IODIDE": REPORT OF CASE *

Albert H. Elliot, M.D., Santa Barbara, Calif.

Since their introduction to medicine in 1908, preparations containing cinchophen (phenyl-quinoline-carboxylic acid) have been used extensively in the treatment of neuralgic and rheumatic disorders. A comparatively large number of instances of toxic manifestations following their use have been reported. Beaver and Robertson,[1] in a recent paper dealing with this subject, have found thirty fatal cases in the literature, and report five more encountered at the Mayo Clinic. The primary pathologic lesion was a necrosis of the liver parenchyma. The toxicity of the drug did not appear to depend on the dosage or the length of time over which it was taken but apparently on some individual factor of lowered resistance or idiosyncrasy.

I wish to report another instance of fatal toxic hepatitis from the use of a cinchophen-containing preparation.

E. M., aged 24, a Mexican woman, married, had had pain and stiffness of the right shoulder at frequent intervals for six years. In conjunction with physical therapeutic measures, "oxyl-iodide" compound, each capsule of which contains 3 grains (0.2 Gm.) each of phenylcinchoninic acid and phenylcinchoninic hydro-iodide, was prescribed in a dosage of two capsules three times daily after meals. At the end of a week she was much improved and was advised to continue the medication for another seven days. When next seen four weeks later, she was complaining of nausea and vomiting of one day's duration, and was slightly jaundiced. She stated that she had continued to take the drug at the same dosage over this four week period, the druggist refilling her prescription without question. It was estimated that she had taken 210 capsules (8.4 Gm.) altogether.

She entered the Cottage Hospital immediately. On physical examination there was a moderate icteric tinge of the sclerae, palate and skin. A smooth, moderately tender liver edge was felt at the costal margin on deep inspiration. The spleen was not palpable nor enlarged to percussion. Ascites or edema was not present. There were no other physical observations of note. The laboratory examination revealed: hemoglobin, 82 per cent (Dare); erythrocytes, 4,280,000 per cubic millimeter; leukocytes, 12,200 per cubic millimeter, of which neutrophils composed 68 per cent, small lymphocytes 30 per cent, eosinophils 1 per cent, and basophils 1 per cent. The urine contained a trace of albumin, but bilirubin, bile acids and urobilinogen (Ehrlich's test) were consistently absent on daily examinations throughout her illness. Chemical analysis of the blood revealed a urea nitrogen of 15.5 mg. per hundred cubic centimeters of blood, an amino-acid nitrogen of 9.7 mg., and a blood sugar of 94 mg. The icteric index was 75. The bromsulphalein liver function test gave a 100 per cent retention of dye in the blood stream after thirty minutes on two examinations.

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* From the Santa Barbara Cottage Hospital.

[1] Beaver, D. C., and Robertson, H. E.: The Specific Character of Toxic Cirrhosis as Observed in Cinchophen Poisoning, Am. J. Path. 8: 237-256 (May) 1931.

On a diet containing 280 Gm. of carbohydrate with a minimum of protein, and 10 units of insulin twice daily, the patient felt well in every respect despite the fact that percussion demonstrated a progressive decrease in liver dulness, and the icteric index steadily mounted to a maximum of 202 two days before death. Nine days after hospital entry, nausea and vomiting appeared, and periods of mental confusion developed, characterized by disorientation and hallucinations. At this time leucine and tyrosine crystals were found in the urine, and the amino-acid nitrogen of the blood had risen to 10 mg. per hundred cubic centimeters. She was given 2 liters of 10 per cent dextrose combined with insulin intravenously during the day, and roused a little in the evening, only to sink toward morning into a deep coma resembling sleep, from which she never aroused. During the period of active delirium it was noted that she did not move her left arm or leg. The biceps and patellar reflexes could not be elicited on the left, and there was a positive Babinski sign. She died on the following day, twelve days after the first appearance of symptoms. Permission for necropsy was not obtained.

GONORRHEAL SALPINGITIS AND PERIHEPATIC ADHESIONS

Carl Bearse, M.D., Boston

The observation that perihepatic adhesions are to be found at times in patients who also have gonorrheal salpingitis was first made by Curtis,[1] a little more than a year ago. Since such adhesions may be the cause of symptoms and play a part in the clinical picture of salpingitis, any further facts relating to this complication are deserving of record.

REPORT OF CASE

H. D., aged 17, a white girl, single, was first seen in consultation with Dr. J. C. Henken at the Malden Hospital, Aug. 22, 1930. August 6, while she was menstruating, cramp-like pains developed in the left lower quadrant of the abdomen. The pains were remittent in character, subsiding while she remained in bed and recurring when she arose. Finally, the pains subsided completely and for several days she was free from all symptoms. August 20, two weeks after the onset of her illness, sharp, knifelike pains developed in the right upper quadrant of the abdomen. These pains were localized and were accompanied by nausea and vomiting.

Physical examination disclosed that the patient was fairly well developed and nourished, looked her age and seemed comfortable. The temperature was 100 F., the pulse was 92, and the leukocyte count was 14,000. The tongue was heavily coated. Abdominal palpation disclosed tenderness and resistance in the right upper quadrant. Neither spasm nor distention was found, nor could any masses be felt. The rest of the abdomen was soft and not tender. Vaginal examination showed a profuse, greenish discharge. There were no masses in the vaults. The uterus was normal in size and position, freely movable, and not painful to manipulation. There was no tenderness over the tubes. Vaginal smears disclosed intracellular diplococci.

It was deemed advisable to keep the patient under observation, and she spent a rather comfortable night. The following morning she complained of a great deal of pain, present only in the right upper portion of the abdomen. A flat roentgenogram of the abdomen disclosed nothing abnormal. Urinalysis gave negative results. A second leukocyte count was 16,000.

As there was no evidence at this time of acute tubal inflammation and since the possibility of an acutely inflamed, high, retrocecal appendix could not be ruled out, operation was advised and accepted.

Under ether anesthesia, a right paramedian incision was made. The peritoneum was opened without event. There was no free fluid. The intestines were injected. Exploration of the pelvic organs revealed the presence of many cobweb-like adhesions, but the tubes were not distended, and the ovaries and the uterus were normal. The appendix was retrocecal, markedly injected, moderately distended, and thickened. The gallbladder was of normal size and appearance, had no adhesions, was easily emptied, and contained no stones. During the gallbladder exploration, many adhesions resembling those felt in the pelvis were seen between the liver and the peritoneum. The appendix was removed, and the incision was closed in layers without drainage. The pathologic report by Dr. J. S. Rooney gave as the diagnosis acute appendicitis.

The patient made an uneventful convalescence, the incision healing by first intention. She was discharged from the hospital on the tenth postoperative day.

COMMENT

Since the appendix in this case showed evidence of acute inflammation, it is quite difficult to conjecture to what extent the adhesions were responsible for the symptoms. The adhesions were not of the firm, "violin string" type described by Curtis and Hinton[2] but were flimsy and cobweb like. It is to be noted, however, that the adhesions reported by these men were discovered long after the onset of the pelvic inflammation, whereas the adhesions in this case were found three weeks after the onset of pelvic symptoms.

While the relationship between such adhesions and gonorrheal salpingitis has not as yet been proved, the observations reported are significant. Scott[3] recently reported the finding of a subdiaphragmatic gonorrheal abscess in a girl whose vaginal smears showed intracellular diplococci, and he thought that the infection was transmitted by the lymphatics or blood stream. Curtis, on the other hand, concluded from the pathologic condition found in the right upper portion of the abdomen that gonorrheal tubal disease is not always limited to the pelvis.

CONCLUSION

Should gonorrheal salpingitis be the cause of perihepatic adhesions, the case reported would seem to indicate that such adhesions may occur early in the inflammatory process.

483 Beacon Street.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following report.
H. A. Carter, Secretary.

SCHELLBERG APPARATUS FOR COLONIC THERAPY NOT ACCEPTABLE

The Schellberg apparatus for colonic therapy, manufactured and submitted by the Schellberg Manufacturing Company, New York, is stated to be a "new and improved medical apparatus for use in proctotherapy." In the letters patent the statements are made, among others, that "it is a further object of the invention to provide means which in its action will remove all obstructions and clean all pockets of the colon"; and also, "it is a still further object of the invention to construct an apparatus the use of which permits of a thorough cleansing of the several passages and is capable in use of insertion to a point where the cecum may be treated."

In the circulars descriptive of the Schellberg apparatus, there are portrayed tables, a metal valve, various receptacles, rectal tubes and sterilizers, intended presumably to afford a complete equipment. The chief mechanical feature of the whole equipment is apparently the metal apparatus consisting of a by-pass valve which permits convenient entry into a rectal tube, with special tip, of the irrigating or other fluid; and also permits the exit from the rectal tube of the contents within the sigmoid or colon.

Of the pamphlets submitted, one is descriptive of the apparatus and the remaining pamphlets have to do chiefly with discussions of the alleged physiology of the bowel and of the colon in particular. In one of the latter, entitled "Colonic Therapy" (copyright, 1928, Schellberg Institute, Inc.), many loose and absurd statements are made, of which the following may be taken as examples: "Defects in the colon, either of structure or of function, are responsible for the majority of human ailments. This is known to doctors everywhere. Most of them know also that permanent relief from such conditions can be secured but in one way. Methods such as the use of enemas, which were never either safe or efficient, can be replaced by those which our present knowledge has shown to be the only logical ones. And these methods are founded upon the physiological principles discovered and defined by O. Boto Schellberg."

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[1] Curtis, A. H.: A Cause of Adhesions in the Right Upper Quadrant, J. A. M. A. **94**: 1221 (April 19) 1930.

[2] Hinton, J. W.: Hepatodiaphragmatic Adhesions as a Cause of Upper Abdominal Pain, J. A. M. A. **95**: 1744 (Dec. 6) 1930.

[3] Scott, G. D.: Subdiaphragmatic Gonorrheal Abscess, J. A. M. A. **96**: 1681 (May 16) 1931.

In the pamphlet entitled "Colonic Therapy" the following statement is made: "As finally perfected it [the Schellberg apparatus] now permits a properly trained and skillful technician to give the colon any form of treatment required without the danger of doing the patient the slightest harm"; and again, farther on, "the technique consists in passing a tube up the colon, entirely through its length when necessary."

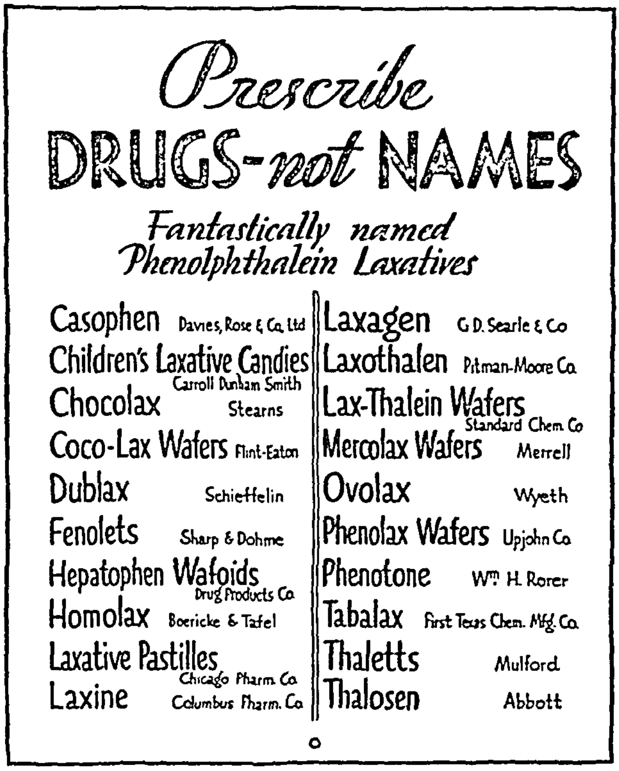
The qualifying statement is added, a few lines farther, to the effect that "based as it is on a profound knowledge of the physiology, bacteriology and chemistry of the colon, its use [viz., the method under discussion] must be limited to those who have this knowledge completely at their command. The technique necessary is too delicate and elaborate to be entrusted to unskilled and unschooled operators.'

In view of the foregoing, it appears that the limits of safety and the possibilities of danger attending the use of this apparatus and method are not adequately pointed out. It would appear that without further emphasis on such possible dangers, some persons considering themselves adequately trained might do serious damage to a subject in whom, for example, the effort was made to introduce a rectal or colonic tube as far as the cecum.

Acceptance of the recommendation and method having to do with the introduction of a rectal tube as far as the cecum, for irrigating or other purposes, more or less as a routine, could not, in the opinion of the Council, be justified without critical evidence of the necessity, safety and superior efficiency of such a measure. To date the firm has failed to furnish this evidence.

In the descriptive matter accompanying the apparatus, sweeping and uncorroborated statements are made relating to the physiology of the colon. On these premises, implications of therapeutic value are permitted the reader which are exaggerated and misleading.

The Council on Physical Therapy has reached the conclusion that, while the essential purpose concerned can also be achieved by simpler means, the apparatus is convenient to use. The supposedly authoritative statements bearing on the physiology of the bowel, however, and the therapeutic implications consequent on them must be radically modified to meet the requirements of the Council. Until such revision has been made in the advertising and descriptive matter pertaining to this device, as is indicated in this report, the Council on Physical Therapy declares the Schellberg Apparatus for Colonic Therapy not acceptable for inclusion in its list of accepted devices.



Prescribe

DRUGS-*not* NAMES

Fantastically named Phenolphthalein Laxatives

Casophen	Davies, Rose & Co. Ltd	Laxagen	G. D. Searle & Co
Children's Laxative Candies	Carroll Dunham Smith	Laxothalen	Pitman-Moore Co.
Chocolax	Stearns	Lax-Thalein Wafers	Standard Chem. Co
Coco-Lax Wafers	Flint-Eaton	Mercolax Wafers	Merrell
Dublax	Schieffelin	Ovolax	Wyeth
Fenolets	Sharp & Dohme	Phenolax Wafers	Upjohn Co.
Hepatophen Wafoids	Drug Products Co	Phenotone	Wm H. Rorer
Homolax	Boericke & Tafel	Tabalax	First Texas Chem. Mfg. Co.
Laxative Pastilles	Chicago Pharm. Co.	Thaletts	Mulford
Laxine	Columbus Pharm. Co.	Thalosen	Abbott

A reduced reproduction of a type of poster that has been shown in the A. M. A. Chemical Laboratory exhibits at the Annual Sessions of the American Medical Association. It is more rational to prescribe a phenolphthalein tablet under its right name.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1931, p. 376).

Parke, Davis & Company, Detroit.

Typhoid-Paratyphoid Vaccine (Prophylactic) (See New and Nonofficial Remedies, 1931, p. 380).—Also marketed in packages of ten 2½ cc. rubber diaphragm capped vials (Bio 444), containing in each cc. 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A and 750 million killed paratyphoid B bacilli.

Typhoid Vaccine (Prophylactic) (See New and Nonofficial Remedies, 1931, p. 380).—Also marketed in packages of ten 2½ cc. rubber diaphragm capped vials (Bio 429), containing in each cc. 1,000 million killed typhoid bacilli.

SOLUTION BRAIN EXTRACT (See New and Nonofficial Remedies, 1931, p. 188).

Thromboplastin Local-Lederle.—An extract of cattle brain in physiological solution of sodium chloride, prepared according to the method of Hess.

Actions and Uses.—See Fibrin Ferments and Thromboplastic Substances, New and Nonofficial Remedies, 1931, p. 186.

Dosage.—See Solution Brain Extract, New and Nonofficial Remedies, 1931, p. 188.

Manufactured by the Lederle Laboratories, Inc., Pearl River, N. Y. No U. S. patent or trademark.

Thromboplastin Local-Lederle, 5 cc. Vial.

Thromboplastin Local-Lederle, 20 cc. Vial.

The potency of thromboplastin local-Lederle is tested as follows: Oxalated blood plasma is obtained by adding 2.5 cc. of sodium oxalate solution 1 per cent. Transfer 0.5 cc. of oxalated blood plasma to each of a series of tubes, and add 0.2 cc. of thromboplastin local-Lederle to each tube. Also transfer 0.5 cc. of oxalated blood plasma to each of a control series of tubes and add 0.2 cc. of physiological solution of sodium chloride. To each tube (and control) add 0.3 cc. of calcium chloride solution (0.5 per cent in physiological solution of sodium chloride): thromboplastin local-Lederle must cause clotting of the oxalated blood (such as to permit complete inversion of the tubes) within one minute; the controls must fail to show clotting at the expiration of 20 minutes.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1931, p. 370).

Lederle Laboratories, Inc., Pearl River, N. Y.

Diphtheria Toxoid (See New and Nonofficial Remedies, 1931, p. 370).—Also marketed in packages of one immunization treatment consisting of two 1 cc. syringes; in packages of one immunization treatment consisting of two 1 cc. vials; in packages of one syringe containing sufficient diluted diphtheria toxoid for one reaction test; and in packages of one vial containing sufficient diluted diphtheria toxoid for five reaction tests.

DEXTROSE (See New and Nonofficial Remedies, 1931, p. 248).

The following dosage form has been accepted:

Glaseptic Ampoules Solution Glucose, 50 per cent, 100 cc.: Each ampoule contains dextrose U. S. P. 50 Gm., in distilled water to make 100 cc.; buffered with sodium citrate, 0.25 per cent.

Prepared by Parke, Davis & Company, Detroit.

POLLEN ANTIGENS-LEDERLE (See New and Nonofficial Remedies, 1931, p. 28).

The following products have been accepted:

Prostrate Pigweed Pollen Antigen-Lederle; Summer Cypress Pollen Antigen-Lederle.

The following dosage form has been accepted:

Series D package: five vials each containing 3,000 pollen units and five vials of sterile diluent with which to make the proper dilution of each dose.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1931, p. 361).

Lederle Laboratories, Inc., Pearl River, N. Y.

Diphtheria Toxin-Antitoxin Mixture (0.1 L+) (See New and Nonofficial Remedies, 1931, p. 362).—Also marketed in packages of three syringes, representing one complete immunization.

NEOCINCHOPHEN-ABBOTT (See New and Nonofficial Remedies, 1931, p. 123).

The following dosage form has been accepted:

Neocinchophen-Abbott Tablets, 7½ grains.

TUBERCULIN-KOCH (See New and Nonofficial Remedies, 1931, p. 364).

H. K. Mulford Company, Philadelphia.

Tuberculin Intracutaneous (Human Type) (See New and Nonofficial Remedies, 1931, p. 366).—Also marketed in packages of one 3 cc. vial (M 331-028) containing tuberculin old (human type) sufficient for 50 tests.

Tuberculin Intracutaneous (Bovine Type) (See New and Nonofficial Remedies, 1931, p. 366).—Also marketed in packages of one 3 cc. vial (M 332-028) containing tuberculin old (bovine type) sufficient for 50 tests.

SCARLET FEVER STREPTOCOCCUS TOXIN (See New and Nonofficial Remedies, 1931, p. 369).

Parke, Davis & Company, Detroit.

Scarlet Fever Streptococcus Toxin for Preventive Immunization-P., D. & Co. (See New and Nonofficial Remedies, 1931, p. 369).—Also marketed in packages of six 1 cc. vials (Bio 158), one containing 500 skin test doses per cc., one containing 2,000 skin test doses per cc., one containing 8,000 skin test doses per cc., one containing 25,000 skin test doses per cc., and two containing 40,000 skin test doses per cc., of which 2 cc. is used for the fifth dose.

Committee on Foods

The following products have been accepted as conforming to the rules of the Committee on Foods of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

PABST-ETT (SWISS VARIETY)

A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals

Manufacturer.—Pabst Corporation, Milwaukee.

Description.—A blend of process Swiss and process American cheese containing disodium phosphate as emulsifier; with added salt, evaporated milk and concentrated milk whey.

Manufacture.—The manufacture is essentially the same as that for Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals) (see The Journal, Oct. 24, 1931, p. 1227) excepting that process Swiss and process American cheese containing disodium phosphate only as emulsifier, salt, evaporated milk and concentrated milk whey are used.

Chemical Composition (submitted by manufacturer).—

	(sample as is) per cent	(moisture free basis) per cent
Moisture	44.8	....
Ash	5.2	9.4
Salt in ash	1.4	2.4
Fat (ether extract)	21.8	39.5
Protein (N × 6.38)	23.6	42.8
Lactose (by difference)	4.6	8.4
Phosphorus (P)	0.37	0.68

Calories.—3.09 per gram; 87.8 per ounce.

Vitamins.—The vitamin content is essentially that of Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals).

Claims of Manufacturer.—See this section for "Pabst-ett."

GOLD MEDAL MONEY MAKER FLOUR

Manufacturer.—Associate companies of General Mills, Inc., Minneapolis.

Description.—A hard wheat patent flour designed for commercial bakers' use; packed in sacks.

Manufacture.—The manufacture is essentially the same as that for Gold Medal Flour "Kitchen-Tested" (The Journal, Oct. 3, 1931, p. 1002) excepting that selected hard wheat is used. The milled flour is bleached and treated to improve the color and baking quality as described for Gold Medal Flour "Kitchen-Tested," although unbleached flour is furnished on request.

The flour is tested by the company's laboratory and experimental bake shop. The laboratory tests aid in controlling the mill operations; the experimental baké shop tests are to assure uniform baking results in commercial baking.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	13.0 –14.5
Ash	0.42– 0.46
Fat (direct ether extraction method)	0.8 – 1.2
Protein (N × 5.7)	10.5 –12.0
Crude fiber	0.4 – 0.5
Carbohydrates (by difference) other than crude fiber	74.9 –71.3

Calories.—3.49–3.44 per gram; 99.1–97.7 per ounce.

Claims of Manufacturer.—A good quality hard wheat patent flour designed to meet the requirements of the baking industry for an economical bread flour.

GORMAN'S EXTRA FINE BREAD (LIBERTY BOND), SLICED AND UNSLICED

A Milk Bread

Manufacturer.—Gorman's Bakery, Incorporated, Central Falls, R. I.

Description.—A white milk bread made by the straight dough method.

Manufacture.—The dough ingredients, a mixture of patent flours of Northwest and Southwest wheats, water, salt, sucrose, lard, sweetened condensed skim milk, fresh creamery butter, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate are mixed in a high speed mixer. The dough is fermented for from two and one-half to three hours. The fermented dough is molded into loaf form, panned, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper. The factory, equipment and storage rooms for the materials are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.9
Ash	0.8
Fat (direct ether extraction method)	0.6
Protein (N × 6.25)	9.6
Crude fiber	0.3
Carbohydrates (by difference) other than crude fiber	52.0

Calories.—2.52 per gram; 71.6 per ounce.

Claims of Manufacturer.—A milk bread of good quality.

DROMEDARY MOIST COCOANUT

(Flavored with Sugar and Salt)

Manufacturer.—The Hills Brothers Company, New York.

Description.—A canned shredded coconut flavored with sucrose and salt; packed in tins in an atmosphere of carbon dioxide.

Manufacture.—The preparation is essentially the same as that for Dromedary Fresh-Keeping Cocoanut (The Journal, Oct. 24, 1931, p. 1227) excepting that the coconut mixture is dried to a moisture content of 18 per cent, no glycerin is added, and the final mix is packed in enamel-lined cans with the air replaced by carbon dioxide. The sealed cans are processed at 100 C. for thirty minutes.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	16.0
Ash	0.3
Fat (ether extract)	41.4
Protein (N × 6.25)	4.4
Reducing sugars as invert	0.5
Sucrose (by copper reduction)	25.3
Starch (acid hydrolysis method)	4.2
Crude fiber	4.2
Carbohydrates (by difference) other than crude fiber	33.7

Calories.—5.25 per gram; 149.1 per ounce.

Claims of Manufacturer.—A coconut food of good quality.

THE JOURNAL OF THE
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SATURDAY, NOVEMBER 7, 1931

EDUCATION, RESEARCH AND PHILANTHROPY

The science of medicine possesses but few philosophers; the scientific mind, indeed, is seldom given to philosophic reflection; it is more likely to be concerned with statements of fact and conclusions derived from them. Occasionally there emerge from some of the scientific fields men who are willing to take thought of conditions as they are, to cogitate on the circumstances that evolved these conditions and to contemplate the possibilities for the future. Such an analysis has recently been made by Dr. Hans Zinsser,[1] who, under the title "The Next Twenty Years," made audible his musings in an address given at the dedicatory exercises of the new Lakeside Hospital in Cleveland.

Viewing the present situation, Dr. Zinsser pointed out that the 166 medical schools of 1910 have gradually diminished to some 70 institutions, which are educating a sufficient complement of doctors for the needs of our nation, incomparably better in quality than their predecessors. Indeed, he says, "The competence of our faculties, the selection of our students and, above all, our material resources have improved at a rate which no other educational movement has ever experienced in an equal period." The past quarter century has been a period of revolution. The next quarter century is more likely to be a period of stability. The revolution resulted in special emphasis on administrative and executive powers. Men who have made places for themselves in medical affairs have been primarily of the administrative and executive types. With the subsidence of the emergencies of organization, Dr. Zinsser sees the necessity for a certain amount of administrative demobilization. He feels indeed that the time has come when educational initiative, influence over appointments, policies of curriculum and university relations should no longer be guided by political expediency or philanthropic necessity but be submitted to leaders who have the qualities of scholars among scholars. In other words, he would avoid the estrangement between faculty and management which feverish days of reorganization have threatened to establish.

Among the policies that have given particular concern to leaders in medical affairs in recent years are some that seem to have been the outgrowth of pressure brought to bear in medical affairs by philanthropic foundations. Dr. Zinsser sees particularly the need for some type of readjustment of relationships existing between institutions of learning and these foundations. The publication in this journal of the letter of Francis Peabody on full time teaching in the clinical branches is an example of the harassing character of such domination. On this subject Dr. Zinsser is quite definite:

> Yet today the medical schools of the following universities —Johns Hopkins, Washington University of St. Louis, Yale, Columbia, Chicago, Cornell, Vanderbilt and Iowa—all of them considerably endowed by the Rockefeller Foundation, have adopted the full-time system more or less in the form advocated by some members of this foundation and opposed by many leaders of the medical profession and by not a few administrators. This may of course be due to the fact that these institutions have all recognized the greater wisdom of the plan. To some of us, wavering in our belief in Santa Claus, it would appear at least not impossible that willingness to adopt an educational policy may in some cases have been subconsciously influenced by the knowledge that such receptiveness to a new idea could, over night, convert an institution struggling to keep its head above water into an affluent one possessing all the material tools for fine performance and future expansion. Accurate controls in this reasoning—which, as a bacteriologist, I would desire—are lacking, since I know of no institutions that have been offered the money and have refused it. *But,* on the other hand, I know of others that now have neither the full-time system nor the money.

It is not implied by Dr. Zinsser that full time teaching may be completely without merit, although he is convinced that it will not produce great clinicians of the type of Osler, Janeway, Strümpell or Nothnagel. He cites the situation rather as an example of the way in which foundations may indirectly stimulate fundamental changes in an educational system and determine policies, whereas it is extremely unlikely that, except by accident, the judgment of administrators of foundations on educational problems can in general be as wise and sound as that of teachers in the universities and institutions which they would dominate.

Dr. Zinsser has seen also the crying need of the times for men: for highly trained teachers, clinicians and investigators. There has been in the past quarter century a conflict between the desire to train good clinicians and good investigators. The reproach is heard that our best schools are training poor investigators instead of good doctors. It is realized now that investigation and teaching are inseparably linked. The teacher must remain a student if he is to progress. The investigator must realize that teaching is an inspiration and not look on his work of instruction as a mechanical process.

To the well known overproduction of nonproductive research Dr. Zinsser pays particularly caustic attention:

> We have developed the habit of judging men for positions by the perusal of the titles of their publications, and a list three pages long is more formidable than one of a few lines.

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[1] Zinsser, Hans: The Next Twenty Years, Science 74: 397 (Oct. 23) 1931.

There is also a peculiarly sensational and sentimental appeal in medical discovery, and we are living in an age in which cheap performance, skilfully vulgarized, may have an enormous advertising value. And institutional rivalry, bidding for support, has had a tendency to foster the submission of results to public and inexpert applause before they have been passed upon in the rigid forum of technical criticism.

There has been, in consequence, a hot-house forcing of medical investigation which, together with some very brilliant and useful growth, has nourished the weeds of much second-rate material. There has also developed a curious halo about research which has exalted it above other and, in the absence of talent, more useful and less expensive methods of occupying time.

Particularly in the fields of cancer and tuberculosis, philanthropy has been exceedingly generous; but money has not been able to engender ideas. "In well equipped laboratories," says Zinsser, "many a man and woman is patiently sitting on a lifeless idea like a hen on a boiled egg." The prophylaxis for this situation Zinsser conceives to be the establishing of a consciousness of the dignity of research and its encouragement only for those who have proper talents and training and, above all, whose reverence for truth is generally recognized. Universities cannot enter financially into competition with manufacture and business for brains. However, it is beginning to be recognized that academic incomes must be respectably adequate to take care of the legitimate needs of a cultivated family of moderate size. In this way science, education and healing will be able to attract the type of mentality they require. With such material Professor Zinsser feels the future of medicine is secure. He ends on a high note:

> Whatever the changes or trials that an uncertain future may hold, nothing can alter the intrinsic purposes of medicine, the very definition of which must be stated in words of action, to increase in wisdom and skill for the relief of suffering and the solace of sorrow—to serve men, their bodies and their minds—indiscriminately in a spirit that transcends social, racial and national distinctions. In all the rivalries and hatreds and mutual distrusts that hold the political and economic world in a grip of terror, medicine has no part. It is the one activity that, through these years of upheaval and revaluation of ideas and institutions, has had no need to alter its standards or its aspirations; it has known no enmities and recognized no national boundaries. Epidemic, sickness, physical suffering wipe out all this, and unite all men in sympathy and human equality.

MOTTLED ENAMEL

Mottled enamel is a condition in which the enamel of the teeth appears a flat, opaque white, may be stained yellow, brown or black, and in addition may have a corroded surface. Histologically, mottled enamel may be distinguished by the absence of cementing substance between the enamel rods. The condition is of endemic origin, and, curiously enough, dental caries is infrequent in teeth with this defect. The area of prevalence of the disturbance is, in general, in the Mississippi Valley and Rocky Mountain region. Many theories have been put forward to explain the incidence of mottled enamel. Apparently it may be prevented by distillation of the water or a change of water supply. That mottled enamel resulted from some factor associated with the water supply was shown in a report of the United States Public Health Service.[1] Kempf and McKay suggested, after a statistical study, that a further study some six or seven years after a domestic water supply had been changed would indicate whether the disease has been influenced by the change. Evidence from other sources indicates that the question may be solved in less time. Dr. McKay deserves in large measure the credit for having called attention to this condition in various parts of the country and for having instigated many investigations on the subject.

That a constituent of the water is the causative factor has been indicated by several recent investigations. University of Arizona investigators[2] have placed the etiology solely on the content of fluorine in the water. These investigators found that water from St. David, Ariz., contained abnormally high amounts of fluorine, approximately 4 to 7 mg. per liter, in contrast to from 0 to 0.3 mg. from nonendemic water supplies. Their observations accorded with the high value found by Churchman for a supply of water at Bauxite, Ark., as reported earlier by Kempf and McKay. Conditions simulating mottled enamel were produced in experimental animals that were given St. David water to drink. At about the same time, Churchill, working in the laboratories of the Aluminum Company of America, examined a number of sources of water of the United States for fluorine. Although expressing reservations on the causal connection between mottled enamel and the occurrence of fluorine, his analytic results show a large content of fluorine in water from wells in districts where mottled enamel of the teeth is endemic.

In 1925, McCollum and his co-workers[3] produced an abnormal effect in the structure of rats' teeth by feeding sodium fluoride. At that time McCollum did not associate the condition with fluoride in the diet. These reports, taken together, appear to give reasonable ground for the presumption that the cause of mottled enamel lies in the high content of fluorine in water. Further investigations to substantiate the preliminary results will be awaited with interest.

Churchill has suggested that chemists interested in water supply might well give attention to the problem of the control of the concentration of fluorides in drinking water. In view of the observations of McClure and Mitchell,[4] who reported the influence of fluorine in the diet on bone structure, Churchill inquires, first, what physiologic effects may be produced by these fluorides, and, secondly, what water chemistry can contribute to the control of concentration of fluorides. Here is a fruitful field for cooperation of water chemists, biologists, physicians, dentists, and public health workers generally. More serious diseases, such as typhoid, have been eradicated in this country by concerted action on sources of domestic water. It is not too much to expect from the promising data at hand that the combined efforts of these groups will make mottled enamel a condition of historical rather than actual interest.

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[1] Kempf, G. A., and McKay, F. S.: Mottled Enamel in a Segregated Population, Pub. Health Rep. **45**: 2923 (Nov. 28) 1930. Mottled Enamel in Segregated Populations, editorial, J. A. M. A. **96**: 775 (March 7) 1931.

[2] Smith, Margaret C.; Lantz, Edith M., and Smith, H. V.: The Cause of Mottled Enamel, a Defect of Human Teeth, Technical Bulletin 32, University of Arizona College of Agriculture, June 10, 1931; Science **74**: 244 (Sept. 4) 1931.

[3] McCollum, E. V.; Simmonds, Nina; Becker, J. Ernestine; and Bunting, R. W.: The Effect of Additions of Fluorine to the Diet of the Rat on the Quality of the Teeth, J. Biol. Chem. **63**: 553 (April) 1925.

[4] McClure, F. J., and Mitchell, H. H.: The Effect of Fluorine on the Calcium Metabolism of Albino Rats and the Composition of the Bones, J. Biol. Chem. **90**: 297 (Jan.) 1931.

Current Comment

MISSOURI—ONCE SHOWN—NOW WISE IN MEDICAL EDUCATION

The state of Missouri, having been repeatedly victimized in the granting of charters to fly-by-night medical colleges, seems with age to have acquired wisdom. Petitioned recently to grant a petition for a pro forma decree of incorporation for the National College of Medicine and Surgery, the courts appointed former circuit judge Harry E. Sprague to investigate the nature of the proposed institution. The Missouri State Board of Health had filed an objection against the granting of this decree through its attorney, Arthur J. Freund. The objection pointed out that the college was not planned for benevolent, religious, educational or scientific purposes but for purposes of profit and that, therefore, it would not constitute a reputable medical college. In its petition for incorporation the college asserted that it was to be a class B institution for homeopathy and surgery, admitting students with a high school training to its courses. The attorney for the National College, one J. Henry Caruthers, asserted that the state board of health charges were anticipatory. The petitioners for the proposed school, F. E. Deal, William R. MacCready and W. F. Walker, were certainly not the type of persons one would select as organizers of a medical school. Deal is an advertising man, MacCready an insurance broker and Walker a graduate in 1922 of the St. Louis College of Physicians and Surgeons, with thirteen months of practice in Little Rock, Ark. The charter of this college was revoked in 1927 on the charge of being a diploma mill. The Missouri State Board of Health had denied him licensure. Judge Sprague, when the case was called before circuit judge Killoren, objected to dismissal of the petition because the proponents of the institution had failed to appear in court. He asserted that he wished to present in their presence all the evidence that he had gathered in order "to prevent, once and for all, the establishment of the college." The lawyer for the petitioners then read a letter stating that they wished to dismiss their application. As still further evidence of the exceptional attitude of leading Missourians in such affairs, Judge Sprague and the counsel for the Missouri State Board of Health declined to accept fees for their services, since they had acted for the common good. Elsewhere in this issue a tale is told of how good old Massachusetts, with some hundreds of years of history behind her, is trying to solve an equally serious situation. Long suffering Missouri is showing her the way.

THE ANTIRACHITIC EFFECT OF SUNSHINE

The part that unobstructed sunshine may play in the prevention of rickets or in the correction of osseous defects of this disorder has become familiar to every physician through the scientific researches of recent years.[1] Fortunately skyshine on a bright, clear day may also contribute some wholesome effects. The potencies are due, of course, to the amount of solar ultraviolet rays that reach the exposed parts of the human organism. Cloudiness, smoke and fog greatly diminish the efficacy of the solar radiation. In a recent issue of The Journal,[2] attention was directed to the comparatively high antirachitic action of Colorado sunshine, with relatively little seasonal variation. Lewis, Frumess and Stein [3] of the University of Colorado School of Medicine in Denver ascribed this to the fact that throughout the year in Colorado relatively short wave radiations reach the earth as a result of the high percentage of winter sunshine, the low humidity, and the small amount of smoke in the atmosphere. Other observers have repeatedly called attention to a seasonal variation in effective sunshine—a feature which the Colorado investigators did not experience to any noteworthy extent. Tisdall and Brown [4] of Toronto have pointed out that changes in antirachitic effect, so far as they are associated with seasons, are apparently largely dependent on the altitude of the sun above the horizon. When the sun is low in the sky the rays necessarily pass through a greater amount of the earth's atmosphere, and the short biologically active rays are markedly diminished. It is stated that the critical altitude of the sun is 35 degrees, below which the rays produce only a slight antirachitic effect. Recently, in a review of some of the earlier work,[2] Tisdall and Brown [5] have remarked that altitude is a factor to be taken into consideration in evaluation of the effects of sunshine. There are a few favored places in the world, they state, such as Switzerland and Colorado, where the height above sea level is so great that the air mass through which the sun's rays must pass before reaching the earth's surface is materially reduced. Altitude as well as latitude thus plays a part in making sunshine effective antirachitically. In Denver, at an altitude of 5,300 feet above sea level, considerable of the sun's rays pass through the air mass even when their source is less than 35 degrees above the horizon. The surplus of bright sunshiny days in Colorado is thus enhanced by the advantages of altitude in preventing loss of ultraviolet rays. The most thickly populated sections of the temperate zones, however, are situated at an altitude of less than 1,000 feet, and have to reckon with seasonal variations as well as atmospheric contaminations.

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[1] Hess, A. F.: Rickets, Osteomalacia and Tetany, Philadelphia, Lea & Febiger, 1929. Blunt, K., and Cowan, R.: Ultraviolet Light and Vitamin D in Nutrition, University of Chicago Press, 1930.

[2] Colorado Sunshine, editorial, J. A. M. A. **96:** 1088 (March 28) 1931.

[3] Lewis, R. C.; Frumess, G. M., and Stein, H. B.: A Comparison of the Antirachitic Effects of Winter and of Summer Sunshine in Colorado, Am. J. Dis. Child. **41:** 7 (Jan.) 1931.

[4] Tisdall, F. F., and Brown, Alan: Relation of the Altitude of the Sun to Its Antirachitic Effect, J. A. M. A. **92:** 860 (March 16) 1929.

[5] Tisdall, F. F., and Brown, Alan: A Note on the Seasonal Variation in the Antirachitic Effect of Sunshine, Am. J. Dis. Child., to be published.

EFFECT OF COFFEE ON THE BASAL METABOLISM

In view of the fact that millions of pounds of coffee are used in the United States alone each year for beverage purposes, it is surprising that so little dependable scientific information should be available with respect to the actual physiologic effects of the substance. The most potent constituent of coffee decoctions doubtless is the purine derivative caffeine, which is known as a mild metabolic stimulant. It also modifies the circulation by stimulating the heart and relaxing the vessels by direct action. Excessive doses may produce insomnia, nervousness, headache, palpitation and nausea or vomiting, especially in susceptible persons. As a drug, caffeine is particularly useful in collapse by causing rise in blood pressure. The medicinal dose[1] is usually given as 0.15 Gm. (2½ grains). A cup of the beverage made from a tablespoonful (15 Gm.) of ground coffee is likely to contain from 0.1 to 0.2 Gm. (1½ to 3 grains) of caffeine. Accordingly it is quite conceivable that even the moderate use of coffee should have some action on the bodily functions. In addition to caffeine the decoction contains a substance vaguely described as caffetannic acid, as well as a small amount of volatile oil to which the flavor and aroma are commonly attributed. What physiologic effects, if any, are attached to these components remains problematic despite the pseudoscientific claims and the blatant nonsense so widely heralded about the subject. Physicians are continually being importuned to give advice regarding the use or abuse of coffee; and usually they find themselves compelled to repeat traditional admonitions, or to disregard them, as the case may be. The experience of millions of moderate coffee drinkers speaks against any acute dangers or profound damage from the beverage. Obviously the chronic effects must be subtle and only slowly developed at most. A recently secured illustration of what this may mean has just been published by Helen Hackett[2] from the University of Oklahoma. Because coffee is considered so generally to be a stimulant, she investigated whether the habitual moderate drinking of coffee, say one or two cups a day over a period of years, has any detectable effect on the basal metabolism of young women. All of these were within 10 per cent above or below the standard weight for height and age, and in apparent excellent health, without organic defects that might affect the basal metabolic rate. The coffee drinkers, in these tests, were persons who drank the beverage daily at breakfast and occasionally at other times. The non-coffee drinkers exhibited an average basal metabolism of 50.2 calories per hour; the coffee drinkers showed, under otherwise comparable conditions, an average of 53.2 calories per hour. The investigation of the college women showed that more non-coffee drinkers than coffee drinkers were found in groups with somewhat low metabolic rates or that the metabolism of the coffee drinkers tended to be higher than that of the non-coffee drinkers. Using the Harris-Benedict prediction figures, the average deviation of fifteen women not accustomed to coffee drinking was —9 per cent; for fifteen coffee drinkers the corresponding figure was —5.1 per cent. These are small differences at most, though Hackett draws the conclusion from them that the drinking of coffee over a period of years has a tendency to raise slightly the basal metabolism of normal young women.

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[1] Useful Drugs, ed. 8, Chicago, American Medical Association, 1930.

[2] Hackett, Helen: The Effect of Coffee on the Basal Metabolism of Young Women, J. Home Economics **23**:769 (Aug.) 1931.

THE INTERNATIONAL UNIVERSITY SPONSORS A "MEDICAL SCHOOL"

A new medical school has appeared in Massachusetts under the auspices of the "International University," incorporated under the laws of Rhode Island in 1930. The medical teaching is to be done in Massachusetts under the auspices of another corporation, known as the "Progress Alliance," but degrees will be conferred in Rhode Island. It is announced that four full years of medicine and two years of premedical work will be required, yet the school deems it necessary to conduct evening classes. Another peculiar statement in the prospectus is that a "year of internship or its equivalent is required *after the student receives the degree of M.D.*" How such a requirement can be enforced after the degree has been conferred is not explained. The *New England Journal of Medicine*[1] writes:

> When one seeks information from the prospectus in regard to the educational facilities of this institution, one finds very little helpful specific information. It is stated that "the Boston City Hospital, one of the largest in the country, is located near this university. Numerous other hospitals and clinics are available to our students." There is no detailed statement in regard to laboratory facilities, nor does there appear any statement in regard to faculty after naming the President and Dean and his secretary, except that the Dean is "assisted by an able faculty of professors and instructors in modern medicine and surgery."

If the heads of this faculty include some of those named in the "Original Articles of Association," grave doubts may be entertained as to the quality of the teaching that will be carried on. Among the persons named therein, one is an official of the College of Physicians and Surgeons of Boston, whose graduates are refused licensure by forty-seven states; another is an osteopath licensed to practice medicine and surgery in Massachusetts; another is a graduate of the St. Louis College of Physicians and Surgeons, not licensed to practice in any state, and another attended the College of Physicians and Surgeons of Boston but by some peculiar arrangement received his medical diploma from the Kansas City College of Medicine and Surgery, being finally licensed in Connecticut after three attempts. None of these physicians are members of their county or state societies or of the American Medical Association, nor is there any evidence that they are qualified to conduct a medical school. Several "medical schools" not deemed worthy of that name by the American Medical Association still exist. Among their students are many who have been disappointed in securing admission to an approved medical school or who have failed to pass the examinations in a class A school. Such students should endeavor to improve their educational qualifications rather than be content to attend a second-rate medical school. What of their futures in the medical profession? Is there any future for them? Would they not be wiser, indeed, to seek other vocations?

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[1] The International University: College of Medicine and Surgery, New England J Med. **205**:736 (Oct. 8) 1931.

Association News

THE NEW ORLEANS SESSION

Application Blanks for the Scientific Exhibit

Circular letters containing information on the Scientific Exhibit for the 1932 session, together with the application blanks, have been mailed. The final date for filing applications is Jan. 20, 1932, and assignments will be sent out shortly after February 10. Any who desire to receive the circular letter and application blank should mail a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago. The Committee on Scientific Exhibit requires that all applications for space must be made on the regular application form.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 9:15 a. m. on Monday and 11:15 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 9. Safe Water for Rural Homes.
November 14. Scarlet Fever.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Society News.—Dr. Edwin Laurence Scott, Birmingham, addressed the Pike County Medical Society, October 13, on bone diseases.——At a meeting of the Baldwin County Medical Society at Bay Minette, September 3, Drs. Horace J. Sims, Daphne, spoke on colitis, and Jesse F. Bryars, Bay Minette, anterior poliomyelitis.——Dr. William H. McCaslan, Union Springs, among others, addressed the Bullock County Medical Society recently on "Summer Diarrheas in Infants and Young Children."——A barbecue featured the meeting of the Cullman County Medical Society, September 17.——At a joint meeting of the Marshall County Medical Society and its northeastern division, September 9, Drs. Irwin P. Levi, Anniston, among others, spoke on "New Causes of Fracture of the Patella," and Cecil D. Gaston, Birmingham, "Diagnosis and Treatment of Malignant Diseases of the Colon and Rectum."

CALIFORNIA

University News.—The semiannual alumni day for all practicing physicians who hold degrees from the University of California School of Medicine, San Francisco, will be held, November 20. The morning will be spent in ward rounds and operations, and the afternoon in lectures and demonstrations.

Licenses Revoked.—At the regular meeting of the state board of medical examiners, October 20, the licenses of the following were revoked:

Dr. Woodward Bruce Mayo, Los Angeles, holder of physician and surgeon's reciprocity license based on Utah credentials; revocation based on alleged illegal operation.

Dr. Denwood N. L. Newbury, Spokane, Wash., holder of physician and surgeon's license to practice in California; revocation based on report of narcotic addiction.

Dr. Eugene Lee Settles, San Diego, holder of physician and surgeon's license; revocation based on alleged narcotic addiction.

George De Normandy Gillespie, D.C., San Francisco, holder of drugless practitioner's certificate and certificate to practice chiropody; both revocations based on record of conviction of second degree murder reported to have arisen from an alleged illegal operation.

Southern California Medical Association.—The eighty-fifth semiannual meeting of the Southern California Medical Association will be held at the Hotel Roosevelt, Hollywood, November 13-14, under the presidency of Dr. Fred B. Clarke, Long Beach. The program includes papers by Drs. Ralph T. Richards, Salt Lake City, Utah, on "New Method of Treating Burns"; E. Eric Larson, Los Angeles, "Subtotal Gastric Resection"; Willis S. Lemon, Rochester, Minn., "Gross and Cellular Response of the Pleura to Foreign Material and the Process of Its Elimination Through Lymphatic Tracts"; Philemon E. Truesdale, Fall River, Mass., "Prolapse of the Uterus"; Samuel Ayres, Jr., and Nelson P. Anderson, Los Angeles, "Use of the Patch Test in the Diagnosis of Contact Dermatitis"; Clifford G. Grulee, Chicago, "Care and Feeding of Premature Infants"; Albert Kuntz, St. Louis, "Relationship of the Autonomic Nervous System to Various Clinical Problems"; Daniel Crosby, Oakland, "Medical Economics"; and Raymond G. Taylor, Los Angeles, "Some of the Causes of Failure in Treatment of Cancer." Dr. George W. Crile, Cleveland, will show a talking motion picture on the thyroid gland, and Karl F. Meyer, Ph.D., San Francisco, will give an illustrated lecture on rabies.

DELAWARE

Personal. — Dr. Ernest F. Smith, Georgetown, has been appointed health officer of Kent County; Dr. John R. Downes, Newark, health officer of New Castle County, and Dr. Everett Reynolds, New Castle, of Sussex County.

State Medical Election. — Dr. George C. McElfatrick, Wilmington, was installed as president of the Medical Society of Delaware at its recent annual meeting in Wilmington, and Dr. Ulysses W. Hocker, Lewes, made president-elect. These officers will serve beginning January 1. Dr. William O. La Motte, Wilmington, was reelected secretary. The next annual session will be held at Rehoboth.

DISTRICT OF COLUMBIA

Health at Washington.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended October 24, indicate that the highest death rate (18.2) appears for Washington, and the rate for the group of cities as a whole, 10.8. The rate for Washington for the corresponding period last year was 14.4, and the rate for the group of cities, 11.1. The annual rate for eighty-two cities for the forty-three weeks of 1931 was 11.9; the same rate appears for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

FLORIDA

Police Seek Forger.—Police in Jacksonville, Miami, Key West, Tampa, Deland and Lake City are reported to be looking for a man who is giving out forged checks in the name of Dr. Thomas Henry Bates, Lake City. According to Dr. Bates, this is the same man who was recently reported to be impersonating Dr. James M. Acker, Aberdeen, Miss. (The Journal, October 24, p. 1233). He presents a card bearing the name of Dr. Bates as owner of the Lake Shore Hospital, Lake City. He is almost 5 feet 9 inches tall and weighs 160 pounds. His eyes are light and he wears spectacles.

Cooperation in Control of Child Health.—At a meeting of the Pasco-Hernando-Citrus County Medical Society, September 10, following the reading of a resolution concerning the health of school children, plans and methods were adopted which assured the society's cooperation with schools and families in the elimination and prevention of certain conditions which affected children's health. According to the plans, articles, which had been submitted to the society for approval and which would cover preventable disease and methods of prevention, would be published in the newspapers of the three counties; mothers would be instructed as to the proper time of immunization; contact with parents and the public schools would be made, and the society would cooperate with the state board of health. It was also provided that other methods of cooperation would be adopted from time to time, if found feasible. This agreement was suggested by a committee composed of Drs. George R. Creekmore, Brooksville, Thomas F. Jackson, Dade City, and George A. Dame, Inverness. The resolution cited statistics indicating that 25 per cent of all deaths from all causes are of children of preschool age, and that medical examinations of children of school age in Florida show that 80 per cent are burdened by one or more defects that handicap their school work and lessen their earning capacity in later life.

IDAHO

State Medical Election.—At the annual meeting of the Idaho State Medical Association in Boise, September 29-30, Dr. Edward N. Roberts, Pocatello, was chosen president-elect, and Dr. Harold W. Stone, reelected secretary. The next annual session of the association will be held in Pocatello. These elections will take effect in January, when Dr. Joseph N. Davis, Kimberly, elected in 1930, will become president.

ILLINOIS

Society News.—At the eighty-fifth annual meeting of the Aesculapian Society of the Wabash Valley, Paris, the speakers included Drs. Otto H. Crist, Danville, "My Experience with Gynoplastic Repair of Old Lacerations Following Delivery"; Julius R. Yung, Terre Haute, Ind., "Goiter and Injuries to the Parathyroids," and Leslie P. Sloan, Oblong, "An Interesting Case of Tularemia."——Dr. Jonas Curtis Lyter, St. Louis, addressed the Randolph County Medical Society, October 20, on diagnosis and treatment of diseases of the heart.——The Pike County Medical Society was addressed, October 22, by Dr. Dudley T. Dawson, Danville, on "Responsibility of the Psychiatrist to His Community."——Dr. Samuel M. Feinberg, Chicago, addressed the Will-Grundy Medical Society at Joliet, November 4, on allergy.——Dr. Walter L. Palmer, Chicago, addressed the Peoria City Medical Society, November 3, on "Peptic Ulcer: Experimental and Clinical Considerations."——The Knox County Physicians' Club will be addressed by Dr. Aaron Arkin, Chicago, November 10, on "Pulmonary Diseases and Their Differential Diagnosis."

Chicago

Physician Sentenced on Narcotic Charge.—Dr. Maurice J. Rabbins, a police surgeon for seventeen years, began to serve his sentence of a year and a day in the federal penitentiary at Leavenworth, Kan., October 17, having been found guilty of violation of the Harrison Narcotic Act.

Supreme Court Denies Rongetti's Appeal.—Dr. Amante Rongetti began his sentence in the United States Penitentiary at Leavenworth, Kan., October 17, having been found guilty of violation of the Harrison Narcotic Act and sentenced, October 2, to serve three years in prison. The U. S. Supreme Court, October 26, denied the plea of Dr. Rongetti for a review of the Illinois Supreme Court's decision affirming his conviction on a charge of manslaughter, according to press reports. Rongetti was sentenced, Aug. 12, 1930, to imprisonment from one to fourteen years for manslaughter on a charge of causing a death by an illegal operation. In his first trial, Rongetti was sentenced to death. When the supreme court granted a new trial, he was found guilty of manslaughter. The recent decision of the U. S. Supreme Court is the result of Dr. Rongetti's appeal, it is reported.

Society News.—Dr. James B. Herrick addressed the Medical History Club of the University of Illinois College of Medicine, October 28, on "Auenbrugger and Laennec."——Dr. Frederick H. Falls was elected president of the Chicago Gynecological Society at its annual meeting, October 16, and Dr. Julius E. Lackner was reelected secretary.——The Chicago Society of Industrial Medicine and Surgery was addressed, November 4, by Dr. Frederic A. Besley, Waukegan, Ill., on "Skeletal Traction in Fractures of Long Bones" and "Present Status of Industrial Medicine and Traumatic Surgery."——Dr. Julian H. Lewis will speak on "Antigenic Relationship of the Lipoids from Brain and Testicles" at the November 9 meeting of the Chicago Pathological Society.——Dr. Joseph Colt Bloodgood, Baltimore, will address the Chicago Roentgen Society, November 11, on bone tumors.

KANSAS

Society News.—Dr. Lawrence P. Engel, Kansas City, Mo., addressed a joint meeting of the Golden Belt Medical Society and Saline County Medical Society, October 1, in Salina, on "Surgical Treatment of Goiter"; Dr. Andrew W. McAlester, Kansas City, spoke on "Diagnosis and Treatment of the Commoner Diseases of the Eye," and Dr. Oman R. Brittain, Salina, "The Shoulder Joint."——The October 20 meeting of the Sedgwick County Medical Society was addressed by Drs. Bruce P. Meeker, Wichita, on "County and Charitable Institutions"; Clarence A. Darnell, Wichita, "School Health," and Harold W. Palmer, Wichita, "Hypothyroid States." The society was addressed, October 13, by Drs. R. C. Hutcheson, Elk Falls, on "Some Observations of Fifty Years"; Howard Snyder, Winfield, "Analysis of Spinal Anesthesia Cases," and Edwin D. Ebright, Wichita, "Shakespeare's Doctors."——A symposium on infections of the liver and gallbladder featured the meeting of the Clay County Medical Society, September 9. The speakers were Drs. Eugene P. Hamilton and Charles Edgar Virden, Jr., both of Kansas City, Mo.——Dr. James W. Kennedy, Philadelphia, addressed the Shawnee County Medical Society, October 5, on peritonitis.——Dr. Lewis W. Angle, Kansas City, addressed the Wyandotte County Medical Society, October 20, on "Chemical Obliteration of Varicose Veins," illustrated.

LOUISIANA

Urological Society Organized.—The New Orleans Urological Society was organized, October 26, in the board room of the Orleans Parish Medical Society. Officers elected for the ensuing year are: Drs. Frank J. Chalaron, chairman; John G. Pratt, vice chairman, and Robert M. Willoughby, secretary-treasurer. The charter members of the society include, in addition to the officers, Drs. Hugh T. Beacham, Edgar Burns, Robert L. Gordon, Joseph Hume, Edward J. Huhner, Pierre J. Kahle, Henry J. Lindner, Roger J. Mailhes, Abraham Mattes, Edward P. McCormac, Cassius L. Peacock, Robert F. Sharp, William A. Reed, Eugene B. Vickery, Henry W. E. Walther and Monroe Wolf.

Shreveport's Fall Clinic.—The 1931 fall clinic was held at Charity Hospital, Shreveport, October 21-23. The surgical clinics included breast amputation, using electrosurgical unit, Dr. Edgar L. Sanderson; hernial repair under spinal anesthesia, Dr. Shelton W. Boyce; electrothermic conization of the cervix, Dr. John B. Younger, and bladder neck obstructions and their management, Dr. Isidore B. Rougon. Subjects included in the obstetric department were operative obstetrics, Dr. Harvey T. Best; conduct of normal delivery, Dr. Benjamin J. Cole, and antenatal hemorrhages, Dr. Edgar Galloway. The subjects covered in the clinics on internal medicine and allied branches and x-rays comprised, among others, peptic ulcers, their complications with special reference to hemorrhage, Dr. Joseph E. Knighton, Sr.; iodized oil in the diagnosis of spinal cord lesions, Dr. Douglas L. Kerlin, and diverticula of the alimentary tract, illustrated, by Dr. William J. Norfleet. Special sessions were held also for the presentation of cases by guests. There were 246 physicians in attendance from Louisiana, Arkansas and Texas.

MASSACHUSETTS

Personal.—Dr. Henry Alden Shaw has been appointed assistant professor of mental hygiene at Harvard University Medical School. Dr. Shaw was formerly a member of the Medical Corps of the U. S. Army, having retired with the rank of colonel in 1921. He has been associated with the medical school since 1926 as assistant in hygiene and as psychiatrist.——Percy R. Howe, D.D.S., Boston, professor of dental science at Harvard University, was awarded the Fauchard medal for his research on the influence of diets on teeth, October 21, at the annual convention of the American Dental Association in Memphis.

State Conference on Child Health.—A state campaign for the application of the findings and recommendations of the White House Conference on Child Health and Protection was begun, October 6-10, when a local conference was held consisting of two meetings in Boston and Springfield. According to the *Massachusetts Health Journal*, this was the beginning of a year's effort to have carried out into all communities in the state those features of the four general divisions of the conference which are found to be needed in the localities. Dr. Mary R. Lakeman of the state department of health is executive secretary of the Massachusetts committee of the White House Conference. Included on the scientific program were Drs. Haven Emerson, New York, LeRoy M. S. Miner, Boston; George H. Bigelow, Boston, state health commissioner; Charles F. Wilinsky, Boston, and Wilson G. Smillie, Boston.

MICHIGAN

Hospital Trust Fund.—The establishment of a $2,000,000 trust fund to erect and equip two hospitals in Detroit is provided for in the will of the late Emma J. Farwell. The hospitals will be largely devoted to charitable work. One institution will be devoted to contagious diseases, while the other will deal with ailments of the ear, eye, nose and throat. Both institutions will be known as the Farwell Foundation Hospitals. The will also provides a bequest of $100,000 to the Protestant

Orphan Asylum, Detroit, and $10,000 to the Children's Hospital, Detroit.

Graduate Course.—Diseases of the heart and circulatory systems were considered in the first graduate course arranged by the department of postgraduate medicine of the University of Michigan Medical School, Ann Arbor, and the Michigan State Medical Society, November 3-7. Those assisting in the course were Dorothy S. Waller and Drs. Frank N. Wilson, Archibald G. MacLeod, David M. Cowie, Fred J. Hodges and Carl V. Weller, all of Ann Arbor; Norman E. Clarke and Robert L. Novy, Detroit. It is planned to devote these graduate courses to special disease groups.

Annual Clinical Conference.—The Jackson County Medical Society and the councilor district held their annual clinical conference in Jackson, November 5. Included on the program were Drs. Frederick C. Warnshuis, Grand Rapids, who spoke on "Cranial Injuries"; Manuel G. Spiesman, Chicago, "Common Colon Conditions," illustrated; Kellogg Speed, Chicago, "Unhappy Results in the Treatment of Fractures," illustrated; William A. Thomas, Chicago, "Mechanism of Nephritis and the Proteins of the Urine"; Ralph Pemberton, Philadelphia, "Arthritis," and Charles H. Mayo, Rochester, Minn., "Unappreciated Hepatic Functions." Dr. Frank E. Whitacre, Chicago, showed motion pictures of the forceps operation by Dr. Joseph B. DeLee's technic.

MINNESOTA

Naturopath Sentenced.—Dana L. Hewett, naturopath, was arrested at Anoka, October 16, and charged with practicing healing without a basic science certificate. In advertising himself, Hewett said that he "removed the cause and nature completed the work," and that he treated successfully functional and organic diseases. Following his arrest, Hewett waived his preliminary hearing and was held to the district court under bond of $500. He entered a plea of guilty, October 21, and was sentenced by Judge Arthur E. Giddings to a term of forty days in the county jail. The sentence was suspended and the defendant placed on probation on condition that he refrain from practicing healing in the state.

Society News.—Dr. Henry C. Cooney, Princeton, was elected president of the East Central Minnesota Medical Society recently, and Dr. Gregor E. Schoofs, North Branch, was elected secretary.——Dr. Francis E. Harrington, Minneapolis, was elected president of the Minnesota Trudeau Medical Society at its recent meeting.——Dr. Sidney A. Slater, Worthington, was elected president of the Southwestern Minnesota Medical Association recently; Dr. John T. Rose, Lakefield, vice president, and Dr. Eugene G. McKeown, Pipestone, reelected secretary.——The Nicollet-Le Sueur County Medical Association was addressed recently, among others, by Dr. Wilfred McKechnie, St. Peter, on "Treatment of Paresis by Malarial Inoculation."

NEW JERSEY

License Lost.—The New Jersey board of medical examiners reports that Dr. Fulvio Patella has lost his New Jersey certificate, numbered 7059. The license was issued, October 3, by endorsement of a Pennsylvania license.

Hospital News.—The Paterson General Hospital has established a clinic for the study, treatment and prevention of cancer through funds given by Hugh C. Lendrim, Paterson, as a memorial to his wife.——A ten-story obstetric hospital with a capacity of 275 beds, to be known as the Margaret Hague Maternity Hospital, was opened, October 1, as a unit of the Medical Center of Jersey City. This group now includes the Jersey City Hospital, the Jersey City Hospital for Contagious Diseases and the maternity hospital, and a psychiatric hospital is said to be in prospect.

Society News.—Dr. Thomas Grier Miller, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, October 9, on "Diagnosis and Management of the More Common Diseases of the Digestive System."——The Camden City Medical Society at its annual meeting, October 6, disbanded and transferred its activities to the Camden County Medical Society. The city society was organized in 1853.——Dr. Spencer T. Snedecor, Hackensack, addressed the Hudson County Medical Society, October 6, on "Medical Problems Afloat and Ashore."——Dr. Harry H. Lott, Philadelphia, among others, addressed the Burlington County Medical Society, Moorestown, September 9, on treatment of acute sinus infections by the general practitioner.——Dr. George Draper, New York, addressed the Morris County Medical Society, Greystone Park, September 30, on poliomyelitis.——Dr. Murray H. Bass, New York, addressed the Passaic County Medical Society, Paterson, September 4, on serum therapy.

NEW YORK

Poliomyelitis Victims Respond to Appeal.—More than 1,100 persons who had had infantile paralysis responded to the appeal of the state department of health for immune blood to be used for treatment during the recent epidemic. Of this number 1,011 contributed blood between July 27 and October 5. Eighty-seven donors gave blood twice and many other persons offered to do so, according to the bulletin of the department. Fifty of the fifty-seven counties in the state outside New York City are represented on the list. A reserve list of later volunteers is on file at the state laboratory.

New York City

Health Talks on Cancer.—A series of talks on cancer have been arranged by the New York City Cancer Committee to be given at the "Home Making Center," in the Grand Central Palace, as follows:

November 10, "Cancer: Its Nature and the Possibilities of Surgical Relief," Dr. George Emerson Brewer.
December 8, "Cancerous and Precancerous Conditions in the Mouth," Dr. Henry S. Dunning.
January 19, "Cancerous and *Precancerous Conditions of the Skin,*" Dr. Robert H. Kennedy.
February 16, "Cancerous and Precancerous Conditions of the Breast," Dr. Burton J. Lee.

Lectures at the Academy of Medicine.—The program of the winter series of Friday afternoon lectures at the New York Academy of Medicine began with an address, November 6, by Dr. Charles Gilmore Kerley, on "Practical Points in the Management of Children's Diseases." Lectures in the coming weeks will be:

Diseases of the mouth and tongue, Dr. George H. Semken, November 13.
Roentgenology of certain acute abdominal conditions, Dr. Ross Golden, November 20.
Diseases of the female breast, Dr. Hugh Auchincloss, December 4.
Surgical possibilities in the treatment of anterior poliomyelitis, Dr. Armitage Whitman, December 11.
Pelvic pain in women, Dr. Walter T. Dannreuther, December 18.

Society News.—The New York Physicians' Club, a social organization, was recently organized with Drs. Harold M. Hays as president, Anthony Bassler, vice president, and Edward P. Eglee, secretary. The club has taken three floors of a building at 133 East Fifty-Eighth Street, which have been fitted for various types of recreation, a library and lounging rooms.——Drs. Edward L. Keyes and Martin B. Tinker, Ithaca, addressed the Queensboro Surgical Society, October 14, on "Principles of Prostatic Surgery" and "Technic of Goiter Surgery," respectively.——The annual dinner of the New York City Committee of the American Society for the Control of Cancer was held, October 29, at the Plaza Hotel; speakers were Dr. Shirley W. Wynne, Dr. Burton J. Lee, Clarence C. Little, Sc.D., and Rev. James M. Gillis.——At the meeting of the Medical Society of the County of Kings, October 20, addresses were made by Drs. Edward H. Cary, Dallas, President-Elect, American Medical Association, on "A Few Problems of the Modern Doctor"; Louis A. Van Kleeck, Manhasset, "We Must Organize," and Matthew Walzer, "Recent Developments in Diagnostic Methods in Asthma."——Dr. Oswald S. Lowsley, among others, addressed the Medical Society of the County of Queens, October 27, on "Newer Developments in Urologic Diagnosis and Surgery."——Dr. Ernest Granville Crabtree, Boston, addressed the New York Society of the American Urological Association, October 28, on "Total Perineal Prostatectomy for the Fibrous Prostate."——Dr. Herbert Willy Meyer addressed the New York Surgical Society, October 28, on "Congenital Cysts and Fistulae of the Neck."——Dr. James Ewing delivered the anniversary discourse of the New York Academy of Medicine, November 5, on "The University and the Medical Profession."

OREGON

License Revoked.—The license of Dr. Nels J. Lund, Portland, was revoked recently on the ground of unprofessional conduct in "the use of deceptive advertising," according to the bulletin of the Oregon State Medical Society.

Personal.—Dr. William E. Gregson, Baltimore, Md., has been appointed health officer of Coos County, succeeding Dr. James B. Gillis, Coquille, who has held the position temporarily since the resignation of Dr. Milton V. Walker, Powers.

Society News.—Drs. Edmund W. Simmons and John H. Labadie addressed the Portland City and County Medical Society, Portland, October 7, on diseases of the skin. The society was addressed, October 28, by Drs. Augustus B. Dykman on "Strabismus in Children," and Robert C. Coffey on "Transplantation of the Ureters into the Large Bowel by the Submucous Implantation Technic: Application of Research Problem to Clinical Surgery."

PENNSYLVANIA

Hospital News.—A new addition for the treatment of communicable diseases was opened, November 1, at the Harrisburg Hospital.——The Quakertown Community Hospital, a $200,000 structure financed by public subscription, was dedicated June 21.——The Lee Memorial Hospital, Bridgeport, was opened in June as a convalescent center.

Society News.—The Dauphin County Medical Society conducted a symposium on cancer, October 13, in which the speakers were Drs. Allen Z. Ritzman, George R. Moffitt, Mathew H. Sherman and Harvey F. Smith, Harrisburg.——At the meeting of the Allegheny County Medical Society, Pittsburgh, October 27, the following addresses were given: "Infectious Mononucleosis," by Dr. Frank A. Evans; "Aviation Medicine," Dr. George R. Harris; and "Common Obstetrical Difficulties and Their Treatment," Drs. Harold A. Miller, William Paul Dodds and Maurice E. Hodgdon.——Among speakers at a regional conference of the American Social Hygiene Association at Erie, November 5-7, were Drs. Edward L. Keyes, New York, on "What Social Hygiene Means to the Community"; Harvey M. Watkins, Polk, "Mental Hygiene in Social Hygiene Education" and William F. Snow, New York, "Social Hygiene in the White House Conference—and After."

Philadelphia

Contaminated Springs in Parks Closed.—Thirty-five out of eighty-nine springs in the city park system are reported to have been closed by the state and city health authorities after thirteen cases of typhoid with two deaths had been traced to the use of water from springs in two sections of the city. The city health department is analyzing all springs, closing all that are found to be contaminated. It was said that the springs were found safe at the last inspection several months ago. The city plans to conduct bimonthly tests henceforth, according to newspaper reports. The springs are the only source of drinking water in the parks, it was pointed out, and are much used by motorists as well as by persons living near.

Society News.—Dr. Franz J. Lang, professor of pathology and director of the Pathologic Anatomic Institute of the Leopold Franzens University Faculty of Medicine, Innsbruck, Austria, delivered the annual Gross lecture of the Pathological Society of Philadelphia, October 30, on "Generalized Osteitis Fibrosa and Its Relation to Osteomalacia and Rickets."——Sir Thomas Lewis of the University College Hospital Medical School, London, delivered the twenty-seventh annual Mary Scott Newbold Lecture before the College of Physicians of Philadelphia, October 28, on "Vasovagal Syncope and the Carotid Sinus Mechanism."——Dr. Maurice Muschat addressed the Philadelphia Urological Society, October 26, on "Massive Renal Hemorrhage Due to Regenerative Hyperplasia of the Collecting Tubules of the Kidney."

TEXAS

Fort Worth Clinics and District Meeting.—The semiannual meeting of the Fort Worth Medical and Surgical Clinics was held, October 13-14, in conjunction with the meeting of the Northwest Texas District Medical Society. Mornings were devoted to clinics at the Methodist, St. Joseph's, Cook Memorial and Harris Clinic hospitals and afternoons were devoted to reading and discussion of papers. Among speakers on the program were Drs. Arthur C. Scott, Temple, "Cervicitis and Its Relation to Cancer of the Cervix"; Jesse Bedford Shelmire, Jr., Dallas, "Endemic Typhus Fever"; William B. Carrell, Dallas, "Traumatic Injuries About the Knee Joint"; Joe D. Becton, Jr., Greenville, "Spinal Anesthesia in Surgery Below the Diaphragm," and Julius A. Heyman, Wichita Falls, "Treatment of Infections with Roentgen Rays." At a banquet, Tuesday, October 13, the speakers were Drs. Edward H. Cary, Dallas, President-Elect, American Medical Association, on problems of organized medicine, and William W. Duke, Kansas City, on allergy. Dr. Heyman was elected president of the society and Wichita Falls was chosen as the place for the spring meeting.

Society News.—Drs. Fred Terry Rogers, Ozro T. Woods and Richard M. Smith, Dallas, presented a symposium on pellagra before the Coleman County Medical Society, Coleman, August 6.—Drs. Frank C. Hodges and Mark Butler addressed the Taylor County Medical Society, Abilene, August 11, on "Fractures Above the Elbow" and "Acute Rheumatic Fever," respectively.——The Texas Pediatric Society will hold its fall clinical meeting in Houston, November 17.——The Texas Public Health Association, formerly the Texas Association of Sanitarians, will hold its annual meeting, November 9-13. Two days will be devoted to laboratory work, one to the drought relief and malaria control programs and the remaining two days to a variety of public health problems. Dr. Harry K. Read, Houston, is president of the association.——Dr. Grace Humphreys Hood addressed the Tarrant County Medical Society, Fort Worth, October 6, on "Complete Anesthesia in Obstetrics."——Dr. George V. Brindley, Temple, addressed the Webb County Medical Society, Laredo, September 7, on carcinoma of the rectum and Drs. Frederick Fink, Charles A. Holshouser and William E. Nesbit, all of San Antonio, presented a symposium on chronic ulcerative colitis.——Dr. Carl E. Mangum, among others, addressed the Wichita County Medical Society, Wichita Falls, September 8, on "Atypical Cases of Allergy."——Among speakers at the meeting of the Texas Surgical Association, Houston, November 16-17, will be Drs. Curtice Rosser, Dallas, on "Essential Surgery for Chronic Ulcerative Colitis"; Kenneth H. Aynesworth, Waco, "Diagnosis and Treatment of Trifacial Neuralgia"; Charles S. Venable, San Antonio, "Intra-Abdominal Hernia of the Sigmoid Colon," and Albert O. Singleton, Galveston, "Operations on the Sympathetic Nervous System for Arterial Diseases of the Lower Extremities."——The Third District Medical Society met at Lubbock, October 27-28, with the following speakers, among others: Drs. John O. McReynolds, Dallas, "The Cataract Problem in Relation to the General Medical Profession"; Ray M. Balyeat, Oklahoma City, "Allergic Migraine — Diagnosis and Treatment"; Otis W. English, Lubbock, "Hyperemesis Gravidarum," and Julius T. Krueger, Lubbock, "Modern Aspects of Retrodisplacements of the Uterus."

VERMONT

Society News.—The annual fall meeting of the New England Society of Psychiatry was held at Brattleboro, October 8; Dr. William A. Bryan, Worcester, Mass., spoke on "Review of the Research Program at the Worcester State Hospital."

State Medical Election.—At the recent meeting of the Vermont State Medical Society in Rutland, Dr. Edward J. Rogers, Pittsford, was elected president, and Dr. William G. Ricker, St. Johnsbury, reelected secretary. The next annual session will be held at Burlington in October, 1932.

WASHINGTON

The Eyesight Swindlers.—*California and Western Medicine* recently reported that "eye specialists" swindled $4,100 out of one family through their purported radium cure for blindness. These "specialists" obtained $1,600 for putting a few drops of alleged radium water in the daughter's eye. Later two other members of the "company" appeared and told the family that the first doctor had been killed in an automobile accident, and that his dying wish was that they should return to see whether his treatment had been successful. After examination of the girl's eyes, they found "germs" still present, and obtained $2,500 additional as a deposit on a "marvelous" electric belt which they claimed was the only one in this country, having been obtained from a German scientist stranded here during the World War.

GENERAL

Further Warning Against H. H. Harvey. — Lea and Febiger, Philadelphia publishers, report that they have recently canceled their contract with H. H. Harvey, who was reported to be posing in the Northwest as a representative of the W. F. Prior Company (The Journal, September 19, p. 860). As he had been operating in Washington, Idaho and Montana and had expressed the intention of going into Utah, physicians in these states are warned to beware of him. Thomas Nelson and Sons, New York, recently took similar action when they discovered that a salesman employed by them under the name C. R. Mathison was really Harvey (The Journal, October 10, p. 1084).

News of Epidemics.—Bans on assemblies, swimming pools and social affairs imposed in the New York public schools because of the recent epidemic of infantile paralysis were lifted, October 26, as the disease was reported to have reached normal prevalence. Sixty-two cases were reported during the week ended October 25, making a total of 4,046 cases since January 1, with 462 deaths.——The immediate source of the epidemic of typhoid at the Cleveland State Hospital during September has been learned, according to the Cleveland *Press*. Investigators have found that a woman assigned to the kitchen was the first to become ill and thus probably infected more than 125 inmates. It had not been determined at the time of the report where this patient contracted the disease.——Diphtheria is reported to have been widely prevalent in Kentucky during September and October. The state board of health reported, October 20, that epidemics prevailed in seventy counties; 250 cases with five deaths occurred during September. Newspapers reported that the board has distributed serum to inoculate 12,000 persons.——An outbreak of twenty-four cases of scarlet fever was reported in October from Hocking County, Ohio.——Ten mild cases of paratyphoid fever occurred at the West Chester (Pa.) State Teachers College, between October 2 and 21.

Society News.—The Association of Military Surgeons of the United States will hold its annual meeting in New Orleans, November 30-December 2. The program includes, in addition to addresses, a clinic on tropical diseases at the U. S. Marine Hospital and a trip to the National Leprosarium, Carville.——Dr. Hubley R. Owen, Philadelphia, was elected president of the National Association of Police and Fire Surgeons and Medical Directors of the Civil Service Commission of the United States at its recent meeting in Atlantic City, and Dr. Arthur Wildman, Brooklyn, secretary. The next annual session will be held in Montreal.——At the annual meeting of the American Association of Oral and Plastic Surgeons, Philadelphia, October 16, the following officers were elected: Dr. Ferris Smith, Grand Rapids, Mich., president; Chalmers J. Lyons, D.Sc., Ann Arbor, Mich., vice president, and Dr. Ernest Fulton Risdon, Toronto, Ont., secretary.——The annual meeting of the National Society for the Prevention of Blindness will be held in New York, November 19. Dr. William Campbell Posey, Radnor, Pa., will give an address on "The Evolution of the Cataract Operation." Subjects for general discussion include medical social service in eye hospitals and clinics, preventing eye troubles in infants, sight-saving classes, trachoma research, and prevention of industrial eye injuries. Dr. Benjamin Franklin Royer, Philadelphia, for the past six years medical director of the society, has resigned, effective December 31, it has been announced.

Association of American Medical Colleges.—The forty-second annual meeting of the Association of American Medical Colleges will be held in New Orleans, November 30-December 2, with headquarters at the Hotel Roosevelt, and under the presidency of Dr. Maurice H. Rees, Denver. The following program has been announced: Drs. William Pepper, Philadelphia, "Health of Medical Students"; Herman G. Weiskotten, Syracuse, N. Y., "Tendencies in Medical Practice: Study of Class of 1925"; Elias P. Lyon, Minneapolis, "Heredity as a Subject in the Medical Curriculum"; Percy T. Magan, Los Angeles, "Rôle of the Medical School in the Development of Character in the Medical Student"; Frederick T. Van Beuren, Jr., New York, "Relationship between Medicine and Dentistry"; David J. Davis, Chicago, "Cooperation between the College of Medicine of the State University and Other State Departments in Illinois"; Fred A. Moss, Washington, D. C., "Report of Committee on the Aptitude Test"; Walter H. Moursund, Dallas, Texas, "Premedical Qualifications in Relation to Achievement in Medical College"; Gotthelf Carl Huber, Ann Arbor, "Graduate Work in Premedical Sciences"; Louis B. Wilson, Rochester, Minn., "Research in Graduate Medical Schools"; Waller S. Leathers, Nashville, Tenn., "Teaching of Preventive Medicine"; James R. McCord, Atlanta, Ga., "Postgraduate Extramural Teaching in Obstetrics"; Everett D. Plass, Iowa City, "Postgraduate Teaching in Obstetrics Through Extramural Courses"; Fred L. Adair, Chicago, "Obstetric Teaching: Résumé of Proceedings of White House Conference"; Horton R. Casparis, Nashville, "Pediatrics: Place in General Health Education Program," and Borden S. Veeder, St. Louis, "Pediatric Teaching: Résumé of Proceedings of the White House Conference."

FOREIGN

Testimonial Fund for Dr. Cox.—In recognition of the retirement of Dr. Alfred Cox as medical secretary of the British Medical Association, a testimonial fund is being collected to be presented to Dr. Cox during the annual meeting of the association in 1932. The completion of Dr. Cox's term of twenty-five years of service will coincide with the centenary meeting of the British Medical Association in that year. A volume containing the names and addresses of all subscribers to the testimonial fund will also be presented to him at this time. It is planned to present a portrait of Dr. Cox to the association during the meeting. Contributions from members in the British Isles, service members and those outside any branch area may be forwarded direct to the honorary treasurer, Cox Testimonial Fund, British Medical Association House, Tavistock Square, London, W. C. 1 Canada and South Africa are making special arrangements through Dr. Thomas C. Routley, Toronto, and Dr. Alexander J. Orenstein, Johannesburg.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 17, 1931.

The Evils of Medical Socialism

In the medical journals the evils of medical socialism are often ignored or minimized, but the *Birmingham Medical Review* is an exception and is always outspoken on the subject. In the editorial columns of the current issue may be read: "Many panel doctors are overpaid. This does not mean that the panel service absorbs an undue sum of money. Almost certainly it does not. But the system which pays to the panel doctor a fixed sum for every patient on his list does result in the overpaying of many panel doctors. The slack man is paid at exactly the same rate as the keen man; the duffer as the competent. A young man with little experience receives more than his elderly, but still active, neighbor, who has spent years in learning his job. A pushing man in a poor crowded neighborhood may have little difficulty in filling his list, and never be really pushed professionally. The demands on his time may be heavy; but the demands on his professional capacity may be comparatively light. For in crowded town areas, panel patients are content with little more than rule of thumb methods. They are pathetically satisfied with a bottle, and, if they happen to be seriously minded, with a long word. They know little and care less about modern methods of diagnosis. Compare the panel doctor whose list includes clerks and better paid artizans. His list is always smaller and consequently his income from panel practice less. But the demands made on him professionally are far higher. His patients expect, and usually get, a comparatively high standard of service. In short, we are confronted with the paradox that the better the service the smaller the financial reward. The system makes no attempt to differentiate between service which is exceedingly valuable to the community and that which is moderately useful."

What is the remedy? Our contemporary suggests some sort of a sliding scale. For the first 500 patients on his list the physician should be paid generously; for the next 250 rather less and so on till the payment for the final few hundreds should be almost negligible. However, there is no chance of such a scheme being adopted. For one thing, it would never be acceptable to the medical profession; the men with the big lists would receive the suggestion with an outburst of indignation. Our contemporary then goes on to discuss the other forms of medical socialism, called public health services—maternity and child welfare centers, the tuberculosis service, and the mental defective service—and suggests that they are all wasteful in the expenditure of public money. But this is inherent in socialism, as the English people at least seem to be beginning to grasp in their slow but sure way.

Financing Hospitals by Sweepstakes

It has been stated in a previous letter (The Journal, June 20, p. 2134) that the Irish have discovered a new way of financing their hospitals—by sweepstakes on horse races run in England, from which country most of the money is drawn. The success of the scheme led to discussions in England on its adoption, but by a majority hospital managers decided against it, partly on moral grounds and partly because it might lead to withdrawal of voluntary subscriptions. This has actually occurred in Ireland. The success of the scheme was so great that hospitals which had no liking for it were drawn into it, not merely because they saw other hospitals obtaining larger sums than were ever hoped for but also because their own subscriptions, as well as those of the hospitals participating in the scheme, were disappearing. It is feared that voluntary subscriptions will become obsolete. But when hospital sweepstakes have lost the attraction of novelty or fail from some other cause, which seems more than probable, the hospitals will be left without adequate support. As they are an essential of civilization, they will have to be taken over by the state.

Better Education in Preventive Medicine Required

In an address at the opening of the winter session of Charing Cross Medical School, Sir George Newman, principal medical officer of the ministry of health, said that the teaching of medicine and its practice were concerned unduly with end-results. They learned medicine from the final entities of the hospital beds. But disease was a process and to alter end-results they must apply their knowledge at an earlier stage. They must give more attention to preventive medicine. Consider what was happening in England. Such diseases as cholera, plague and typhus had been conquered, though once terrible pestilences. We had an extraordinary control over smallpox and other diseases. Infant mortality had fallen from 150 to 60 per thousand births in a single generation. These amazing victories were not the results of hospital treatment but of preventive medicine. We suggested four ways of encouraging its study: The outlines of hygiene and preventive medicine could be placed before the student in his fourth or fifth year in a series of lectures. In Great Britain this was more fully done in the provincial than in the London schools. The second method was clinics for instruction and demonstration in preventive work. The third, and much the best, was to introduce into the main subjects of the curriculum the preventive principle. Fourthly, there should be an examination in the subject before qualification. Many newly qualified physicians did not appreciate the preventive trend that was now characteristic of enlightened medicine. The real outpost of preventive medicine was the private physician, and the public would soon demand preventive advice from him. The national insurance act, under which 15,000 physicians worked, was passed for the prevention as well as the cure of disease. Was the public getting an effective service? Vast sums were being paid to give it. If the public was not, it was because the physician had not been trained to provide it.

Metallic Foreign Body Removed from the Lung by Magnet

At the Nottingham General Hospital a foreign body was removed from the lung by an unusual method. A boy of 6 swallowed a ball bearing, which passed into the lung and set up pneumonia. He was too weak for administration of an anesthetic and removal of the body by tracheotomy. Mr. H. Bell Tawse (laryngologist) came to the conclusion that the only safe method was by means of a powerful magnet. This was obtained from the Eye Infirmary, where it is used for removing foreign bodies from the eye. The boy's body was passed through the magnet, so that when the current was switched on he was in the middle of a powerful magnetic field. With the bronchoscope the ball was located and an iron rod, made especially for the operation, was passed down the tube. In a second the ball clicked on the magnetized bar and was removed. This seems to be the first case on record in which a foreign body has been removed from the lung by means of a magnet.

The Evils of Noise: Oxford Protests

The quietude of Oxford has been so disturbed by automobile traffic that the Society for Noise Abatement has been formed. Addressing the inaugural meeting, Sir Maurice Craig, the psychiatrist, declared that the popular view that people should be able to get used to noise as to many other things in life was a dangerous error. Scientific instruments could be damaged by vibration, and the human nervous system was quite as sensitive. The best nervous system was the most easily disturbed. Sounds which at first might be only objectionable became intolerable if continued over a long period. For instance, to many the chiming of clocks was one of the worst things of all. Prolonged noise gave rise to increased sensibility, which in turn produced irritability. Sleep became defective, powers of concentration were lessened, and ability to work suffered. But it was the disturbance of the emotions which noise caused that was so dangerous, because that brought other disturbances of mind and body.

The Master of Balliol, who presided, said that Oxford used to be a quiet restful place and for that reason some of the great things came out of it. They suffered from innumerable automobile drivers accelerating badly. They were only just beginning to realize what a difference noise made to the city of Oxford and the life of the university. Prof. A. M. Low said that one might say to be hit by a sound was not the same as being hit by a brick. But the energy radiated by sound was big in cumulative effect. It was fortunate that our ears had become atrophied by living in cities.

PARIS

(From Our Regular Correspondent)

Sept. 29, 1931.

The Colonial Medical Convention

The International Colonial Exposition, which, since last summer, has attracted up to 500,000 visitors a day, has revealed to them, among other things little known, the great energy displayed by all colonizing nations in the creation of improved conditions of health. One of the reasons that cause many Frenchmen to hesitate to seek their fortune in the colonies is the fear of the peculiar diseases that may be encountered. Many persons have seen fellow citizens who, on returning from a stay in the colonies, suffered from malaria and from dysentery. Propaganda for colonial expansion has skilfully combated in advance such objections by advertising widely the great efforts put forth by all colonizing nations to combat the local scourges and arrest their action not only on white persons but also on the natives. In all the pavilions are displayed graphs and statistics showing the progress that has been made—photographs, reproductions in miniature of vast hospital areas, dioramas with figures representing physicians taking care of the natives and giving vaccinations of all kinds. Everywhere in the exposition marvelous objective lessons are given, which make a deep impression on the visitors. The documents and displays presented by the United States to illustrate the nature of the health work in the Philippines and in the Panama Canal Zone have attracted great attention; likewise the similar displays furnished by the Netherlands. In addition, an immense Congress on Tropical Diseases and Colonial Hygiene was held, lasting over a week, which the government exerted itself to make a great success. The congress was organized by Marshal Lyautey, under the name of the Journées médicales coloniales, and was attended by a considerable number of colonial physicians and French and foreign scientists interested in the study of tropical diseases. England alone sent eighteen official delegates. The United States was represented by Major General Merritt W. Ireland, surgeon general of the army medical department, and the Philippines by Prof. José Albert of Manila. By reason of the large number and the variety of the communications, the scientific assembly was distributed over several sections that met simultaneously in different places; otherwise the congress might have continued for two months. There was collected in a short time an abundant array of papers on yellow fever, malaria, trypanosomiasis, leprosy, syphilis, diseases common to man and to animals, immigration and public hygiene, the supplying of pure drinking water, the pathology and modes of combating intestinal parasites, pharmacology and tropical drugs, sanitary and demographic protection of the natives, native children, medical aid in the colonies, medical personnel, surgery in the colonies, diseases peculiar to the colonies, mineral spring resorts, and climatic conditions. An important special section was devoted to the rôle of sanitary aviation in the colonies.

It is impossible even to enumerate all the communications presented. The part played by the various species of Stegomyia in the transmission of yellow fever and of dengue was well presented by Mr. Le Gac. He emphasized the danger to countries hitherto exempt from yellow fever by the existence in them of species of Stegomyia capable of serving as a reservoir for the virus of the disease. Almost any day the virus may be accidentally carried to any country by the new means of communication, particularly airplanes. Mr. Pettit spoke on vaccination and serotherapy in yellow fever. Mr. Roubaud gave a comprehensive account of Anopheles, the transmitting agent of malaria. Mr. Robin of Saigon, Cochin China, gave the story of the antimalaria crusade in Indo-China. Mr. Carlos Mongis of Lima recounted the results of his researches on tropical anemias. Mr. Jamot gave a comprehensive account of the crusade against trypanosomiasis in Cameroons. Mr. Stevenel described the prophylaxis and treatment of leprosy in the colonies. He thinks that leprosy is not contagious but that it is transmitted by the repeated bites of a dipterous insect found everywhere. He considers also that the real active principle of chaulmoogra oil is to be sought rather in the hard integument of the seed than in the almond. Prof. Warrington Yorke of Liverpool presented documentary evidence on the same subject. The treatment of leprosy in modern hospitals does not give as good results as the strict internment of those afflicted, practiced in the middle ages. Mr. Vaudremar outlined the results of his research on the cultivation of Hansen's bacillus during the past three years. Mr. Lacapàre described the types of syphilis that appear in the natives. They are more mutilating than those appearing in Europeans but are less grave, since the viscera are seldom attacked and the disease often heals spontaneously. But this syphilis transmitted to Europeans reassumes the same characters that it habitually presents in them, which shows that the terrain alone causes the differences and not a different virus. Mr. Le Toullec discussed at length the relations between syphilis and yaws, the spirochetes of which are so similar. Mr. Krick gave the results of his research on tuberculosis in animals in Madagascar. Mr. Daubney and G. M. Findley described a new acute disease due to an ultramicroscopic virus, which is prevalent in Kenya. It is called Rift Valley fever; it lasts four days and produces an intense leukopenia with necrosing hepatitis, and is in some respects analogous to yellow fever. Mr. Stevenel considered the modes of destruction of intestinal parasites among the natives of France. He regards carbon tetrachloride as the preferred remedy. Several communications were presented on the cultivation of medicinal plants in the colonies, particularly cinchona, chaulmoogra and strophanthus, and on the value of research on indigenous drugs. Mr. Lasnet described in detail the many measures adopted for the protection of natives in the colonies; the creation of Pasteur institutes, hospitals, dispensaries; the education of a large native medical personnel, and the study of alimentary regimens to be recommended. Mr. Harvey S. Thatcher of Arkansas reported the results of his experimental studies on the relations that may exist between pellagra and avitaminosis. Mr. José Albert of Manila described in detail the manifestations of cardiac beriberi in nurslings in the Philippines, and Mr. Gautron explained the characteristics of goundou, a disease attended with bony exostoses at the sides of the nose, observed in the equatorial regions, the nature of which is the subject of controversy, some observers connecting it with yaws, others with syphilis, and still others with the presence of larvae of dipterous insects in the nasal fossae. Mr. Cuenod of Tunis presented a comprehensive paper on trachoma in Africa, and Mr. Fleury on the same disease in Indo-China. The thermal springs found in the French colonies were reviewed in numerous communications; also the value of various French springs for the treatment of tropical diseases brought to the capital by colonists and soldiers. There were eighteen resolutions discussed and adopted in plenary session at the close of the congress. The conventionists were entertained at many receptions. One that was particularly appreciated was given in her magnificent château de Courance, near Paris, by the marchioness de Ganay, who is of American extraction.

BERLIN

(From Our Regular Correspondent)

Sept. 21, 1931.

Progress of Orthopedics

The twenty-sixth convention of the Deutsche orthopädische Gesellschaft, held in Berlin, September 14-16, was prolific in new ideas. The first day was devoted to the topic "The Theory of Hereditary Transmission in Relation to Orthopedics." Freiherr von Verschuer, director, department for the study of hereditary transmission, in the Kaiser-Wilhelm-Institut für Anthropologie in Dahlem, gave a survey of the new research in this field. Up to a few years ago, the conception was encountered in medicine that the irrefutable proof of the hereditary transmission lay in the recurrence of a parent's disease in the children. The rediscovery of the hereditary "laws" set up by Gregor Mendel has brought about a change in this conception. It is now known that a disease may be termed hereditary only when it has its essential causes in pathologic hereditary predispositions. In orthopedics, the investigations of Böhm of Berlin have shown that disorders such as pes pronatus, genu valgum, genu varum and congenital dislocation of the hip are to be regarded as types of arrested development—as a standstill in an early developmental stage of the child. Verschuer showed further that influences of the environment affect the course of the development conditioned in part by hereditary predisposition. His research on unioval twins with identically the same hereditary character has blazed new trails. Thereby science has learned to distinguish between environment-labile and environment-stabile qualities. This research on twins is especially important for the further investigation of the problem of hereditary transmission of orthopedic disorders, as Verschuer showed by citing the examples of polydactylism and congenital dislocation of the hip.

Professor Valentin of Hanover emphasized that orthopedics is in a position to advance research on the constitutional theory and on the theory of hereditary transmission in man, as it has to do with diseases with objective symptoms, the appearance of which in the family is easily demonstrable. The influences of the environment may become effective before birth, so that one twin, as a result of defective blood conveyance, suffers from arrested development or dies. Valentin showed furthermore that persons with constitutional anomalies, in spite of the fact that they belong to different races, often present a remarkable resemblance to one another, citing the example of congenital dwarfs. Also constitutional diseases appearing in later life (such as polyarthritis) may lead to such resemblances. It must be admitted that research on constitution has not worked out any exact methods as yet.

SPASTIC PARALYSIS

The second day brought a discussion of spastic paralysis. Professor Hoffmann, physiologist of Freiburg, delivered the introductory address on muscle tonus. In pathologic spasm there is an absence of normal muscle tonus. In rigidity of the joints there is not a lessened but an increased muscular action. After these rather theoretical discussions, the paper of Dr. Stoffel of Mannheim took up the treatment of spastic paralysis. Operative treatment of this disease is usually difficult and requires great experience. He proposed a method that consists in the division of nerves of the lower leg, with which good results are secured, as was confirmed by Professor Kreuz of the Orthopädische Universitätsklinik in Berlin. Learning to walk afterward is often difficult. Carefully adjusted after-treatment is important—which lessens the lameness and weakness of the muscles by means of suitable exercise, massage, baths and special training, and brings about a better interplay of the muscles.

FLATFOOT

The third day was characterized by a comprehensive discussion on the operative treatment for flatfoot. On the basis of a questionnaire addressed to members of the society, Dr. Schrader, chief physician of the Heidelberg Orthopedic Clinic, discussed the indications and the technic of the many different types of operation. It was formerly held that flatfoot consisted in the lowering of the arches of the foot, due to weight bearing. It has been discovered that the cause lies in an inward turning of the heel, produced by an inward deflection of the lower leg. All operations that aim to lift the arches of the foot are doomed to failure; hence the reluctance of specialists to perform an operation in childhood. If, however, the early forms are treated surgically, after nonsurgical methods have failed, one prevents the more severe types of advancing years, which are difficult to improve even by surgical means. Many speakers discussed the various operative methods and gave widely divergent opinions in regard to their respective merits. The orthopedists also are showing a tendency toward more complete specialization. The chairman, Professor Wollenberg of Berlin, discussed in his opening address the relationship of orthopedics to the parent stock: surgery. The goal of the society, recognition of the independence of orthopedics as a specialty, has been attained only in part. Orthopedics, as Wollenberg emphasized, is fully conscious of the fact that it owes much to surgery; but as time went on, it was compelled to go its own way. It expresses gratitude to surgery but will not consent to occupy a subordinate position. Wollenberg then addressed an urgent appeal to the central government not to allow the special aid given to cripples to lag. He admitted, however, that certain retrenchments, in view of the economic crisis, were in order. But the retrenchments must not be so drastic as to jeopardize the success of the Prussian movement in aid of cripples after its ten years of existence. There is scarcely any form of social legislation that has accomplished so much as the Prussian movement in aid of cripples, which was launched in 1920. All were ready to admit the worthiness of the task and the great progress that has been made; but in view of the present crisis it appears doubtful whether this branch of public aid can be preserved.

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 7, 1931.

Congress of Obstetrics and Gynecology

The first Argentine Congress of Obstetrics and Gynecology was held at Buenos Aires, August 9-14. Among the official topics discussed were pain during childbirth, biology of the vagina, cesarean section and partial symphysiotomy. There were sections for operative work, which was carried on in several maternity hospitals of Buenos Aires. Dr. Chueco exhibited a technic for vaginal cesarean section.

Undulant Fever

Foci of undulant fever, both in persons and in goats, were discovered in the provinces of Mendoza, San Juan, Córdoba, Catamarca and Buenos Aires. The government appointed a committee comprising Drs. A. Sordelli, president, E. A. Molinelli, secretary, and Drs. F. Destefano, J. Miravent, J. M. de la Barrera, S. S. Quiroga and A. Andrieu, members of the board of activities, to study and control the disease. Dr. Sordelli came down with undulant fever while performing laboratory studies related to the control of the disease.

Society Against Hydatidosis

Following the proposal of Drs. J. Arce and O. Ivanisevich, the Sociedad Argentina de Profilaxis y Patología de la Hidatidosis was recently organized. The members of the society will make a more exact nosographic chart of the disease, compile statistics of its frequency from 1921 to 1930, and promote scientific investigations related with its problems and control. The headquarters of the association will be the Instituto de Clínica Quirúrgica of Buenos Aires, of which Dr. Arce is the director.

Teachers Appointed

The board of directors of the School of Medicine of the University of Buenos Aires recently presented to the government of Argentina several ternas (a list submitted to the government containing the names of three men, of whom one is selected for governmental preferment), for the vacant chairs left by the voluntary resignation of Drs. Carbonell, Speroni, Zárate, Velarde, Viñas, Borda and Sabatine, who had reached the age limit. Drs. A. Zwanck, T. Padilla, J. Beruti, J. Gabastou, J. M. Jorge, A. Ameghino and R. Rebagliati were appointed to fill these positions, which correspond to the chairs of hygiene, semeiology, obstetrics, psychiatry, and inorganic chemistry. Dr. J. Belbey was appointed substitute professor of legal medicine.

University Prizes Awarded

The prizes of the School of Medicine of the University of Buenos Aires were awarded as follows: Drs. O. Orías, A. Salaber and J. Molinari obtained the 1930 prize for the best doctoral thesis presented before the faculty during the year. The prize for the best medical contribution published during 1930 was awarded to Drs. T. Padilla and A. Cossio for their work on pathology of occlusion of coronary arteries. Dr. J. Sená was awarded the Lagleyze prize of ophthalmology for his paper on foreign bodies in the eye. The A. Centeno prize (in pediatrics) was awarded to Dr. G. A. Schiavone for his paper on tuberculosis in nurslings. A prize awarded by the Academy of Medicine of Paris has been given to Dr. P. Belou in recognition of his important work "Atlas de Anatomía del Oído."

Dr. Cantón Is Dead

Dr. E. Cantón, honorary president of the Academia Nacional de Medicina of Buenos Aires, died, June 21, aged 70. Dr. Cantón formerly was dean of the School of Medicine of the University of Buenos Aires. From 1892 to 1900, he was a teacher of parasitology and from 1901 to 1917 a teacher in the obstetric clinic. He is the author of "Historia de la Medicina en el Río de la Plata." He also published works on medical legislation. He framed several laws concerning matters of public health. He was a deputy and president of the house of representatives in Buenos Aires.

Foreign Lectures

Drs. A. Kira Kawata of Osaka, Japan, Gregoire of Paris, A. Donatti of Turin, Italy, E. García del Real of Madrid, Spain, and A. Castiglioni of Parma, Italy, are at present in Argentina giving lectures. Dr. Kira Kawata gave a series of lectures in Spanish, on neurology. Drs. Gregoire and Donatti gave lectures on clinical surgery and Drs. García del Real and Castiglioni gave a course of twenty and ten lectures, respectively, on the history of medicine.

Restriction on Foreign Physicians

Foreign physicians are not allowed according to the laws of Argentina to practice unless either they make valid their diplomas by taking an examination (the fees of which are 4,000 pesos, or $1,600) or repeat their studies in any of the universities of Argentina. This policy was adopted because many foreign physicians practiced in clinics and hospitals as assistant physicians to Argentine physicians who acted as directors of the hospitals. In this manner both diagnosis and treatment of patients were made by persons not entitled by the law to practice. The president of the national department of hygiene states that foreign persons in all branches of medicine (physicians, dentists, pharmacists, midwives or obstetricians) should have a national diploma from one of the universities of Argentina to be allowed to practice.

BELGIUM

(From Our Regular Correspondent)

Oct. 2, 1931.

International Congress of Open-Air Schools

The second International Congress of Open-Air Schools was opened by the presidential addresses of Dr. René Sand and General Director De Paeuw, and by the official greetings of Dr. Mola, president of the International Committee (Montevideo), to the representatives of Czechoslovakia, England, France, Germany, Italy, Mexico, Netherlands, New Zealand, Poland, Peru, Spain and Scotland.

The scientific papers were presented before two sections. From the medical point of view, the discussions dealt with the collaboration of physicians and teachers in the open-air schools; the bases of physical education; respiratory technic, and the selection of children. The scientific assembly was attended by Drs. Armand Delille of Paris, Mola of Montevideo, Selter of Bonn, Madel of Paris, Delattre, Galet and Imianitoff of Brussels, Ledent of Liége, Jeudon of Paris, Monnoi of Milan, and others. Excursions to Brussels, Antwerp and the Belgian coast afforded the visitors an opportunity of seeing the large number of open-air schools that Belgium possesses.

The following resolutions were adopted:

1. Any move to apply the principles of open-air schools should be encouraged by the public authorities.

2. The government and school authorities are requested to call the attention of the teaching personnel to the necessity of applying the principles of the well ventilated classroom.

Furthermore, the school authorities are requested to (*a*) lighten the curriculums and to organize the school day in such a manner that the pupils may benefit to a wide extent from games and from walks in the open air; (*b*) provide in all the schools the greatest possible application of lessons and exercises in the open air; (*c*) provide in close connection with urban schools a garden and a playground as large as possible, and (*d*) establish in the congested districts or near to them large playgrounds for children, under competent supervision.

Tuberculosis Among School Children

In the *Revue belge de la tuberculose*, Olbrechts publishes a comprehensive article on "Tuberculosis Among School Children." He takes essentially the attitude of the school physician who is eager to discover among the children under his surveillance those who are menaced with the evolution of tuberculosis and those who already present tuberculous lesions. The tuberculin skin test should be applied to all children suspected of being tuberculous. It would be well if the test could be applied periodically. It would thus be possible to separate the children already contaminated by the Koch bacillus from those still exempt from infection.

In Belgium, the percentage of children presenting a positive tuberculin skin test is shown in table 1.

The primary tuberculous infection, as evidenced by the positive skin reaction to tuberculin, most commonly provokes no characteristic symptom that would attract the early attention of the physician. The radiologic examination is not to be applied systematically to all children reacting positively to tuberculin; for it does not reveal more than simple radioscopy, which is easy to apply, rapid and not burdensome. If the specific methods for the detection of tuberculous infection fail, the physician will endeavor to detect the presence of the disease by means of general clinical symptoms. In this connection, it may be noted that cervical adenopathy is found with the same frequency in children who react *negatively* as *it is in children* who react positively to the tuberculin skin test, as will be seen in table 2.

Nor as regards height, weight, corpulence or chest development, is there any constant and frank difference in favor of one or the other group of children.

It may be considered as to whether the humoral tests afford a more accurate means of detecting the presence of tuberculosis. The antibodies brought to light by the fixation of complement are not in direct relation with the state of immunity or of resistance to infection. The erythrocyte sedimentation test offers no specificity; but it does supply evidence as to the state of suffering of the organism without reference to the origin of any disorder; this test would, however, be less trustworthy in the child than in the adult. The Vernes seroflocculation test may give in some cases an abnormally high photometric degree in nontuberculous disorders.

Table 1.—*Percentage of Children Presenting a Positive Tuberculin Skin Test*

Age of Child	J. F. Heymans	Meunier	Duthoit	Olbrechts
5 years	50	31.7	40	53.0
6 years	45	41.0	48	42.5
7 years	38	47.5	75	46.5
8 years	60	55.5	85	57.0
9 years	61	55.0	80	57.5
10 years	75	54.0	83	61.5
11 years	71	68.0	81	52.0
12 years	71	60.0	96	67.0
13 years	70	76.5	87	55.0
14 years	72	81.0	..	69.5

Olbrechts gives for Belgium the following statistics: number of children aged 5 to 15, 1,335,685; deaths in year from pulmonary tuberculosis, 347; mortality per thousand, 0.26; morbidity per thousand from pulmonary tuberculosis, 1.30; general mortality, 3.238; deaths from pulmonary tuberculosis out of 100 deaths from all causes, 10.7.

Table 2.—*Skin Test in Children with Adenopathy*

Age of Child	Tuberculin Skin Test	
	Negative	Positive
5 years	82	63
6 years	72	70
7 years	76	70
8 years	70	57
9 years	54	63
10 years	72	66
11 years	66	60
12 years	52	80
13 years	52	69

The diagnosis of tuberculosis in the school child is associated, to a certain extent, with the inquiry in the family. The latter may supply an element of precision by showing the existence of a bacillary contact or it may lead to the application of prophylactic measures: isolation of the patients, or sending of the children to resorts for recuperative treatment.

The various therapeutic institutions for children have their clientele well defined. The open-air colonies accept weakly children. The preventoriums take charge of the latent cases.

To the sanatorium should be sent only those who are frankly infected, excluding the inactive cases.

Close collaboration of medical inspection of schools and of the antituberculosis dispensary is needed in order to secure the best results from the many efforts made in carrying on the crusade against tuberculosis in children.

Medical inspection of schools will likewise be of great aid in connection with the trials of antituberculosis vaccination that are being made. The distribution of the disease will determine the rôle that school medical inspection will play.

In Memory of Albert Brachet

A committee has been formed that counts among its honorary members the most eminent anatomists and embryologists of all lands, while the executive committee is composed of Belgian scientists, presided over by Prof. Léon Crismer. The committee was appointed to honor the memory of Albert Brachet, director of the Institute of Anatomy and Embryology, member of the Academy of Medicine and the Academy of Sciences, and corresponding member of the Institut de France, the Academy of the Lynxes, the Royal Society, and others. The pupil and successor of Swaen and Van Beneden, he was one of the most prominent and most capable embryologists, and one of the precursors of experimentation in morphologic studies. The committee is planning to establish an Albert Brachet prize with which to reward the best research work done during a certain period or a series of researches that have marked a distinct advance in the domain of embryology and, particularly, causal embryology. The prize will be open to scientists of all countries. Albert Brachet always held that science ought to bring the nations of the earth more closely together; that it should know no boundaries, and that it should be the great school of humanity and righteousness. The prize will be awarded by the Academy of Sciences of Belgium.

Marriages

Joseph Norman Walsh, Moncks Corner, S. C., to Miss Cleremonde Gaillard Sinkler of Eutawville, August 25.

Carl Mathews Dumbauld, Lieut., U. S. Navy, to Miss Phyliss Elizabeth Miller at Hagerstown, Md., June 16.

Alexander Grinstein, Seattle, to Miss Selma De Lue of Montgomery, Ala., in San Francisco, September 16.

Van Doren Rathgeber, Fort Worth, Texas, to Miss Bernadine Walters of Madison, Wis., September 8.

Ernest Foster Gordon, New Haven, Conn., to Miss Florence Oppenheim of Yonkers, N. Y., August 16.

Joseph H. Brown to Miss Dorothy Duringer, both of Fort Worth, Texas, in San Diego, Calif., October 7.

Harris Hartwell Bass, Jr., Henderson, N. C., to Miss Elizabeth Gow of Butte, Mont., September 2.

Herman A. Gross, Lieut. (j. g.), U. S. Navy, to Miss Mildred Schmick of St. Louis, September 9.

William H. Rohdenburg to Miss Mildred Klein, both of Norwood, Ohio, at Wintersville, June 13.

Paul E. Kellogg, Ashland, Ohio, to Miss Anne Rosenkeimer of Beaver Falls, Pa., August 22.

Francis H. Riley, Jamestown, Ind., to Miss Ruth Hill of Carthage, in Peoria, Ill., September 9.

William Shepherd Hester to Miss Cecilia Reid Scott, both of Reidsville, N. C., October 10.

Albert Francis Saunders, Valdosta, Ga., to Miss Sally Lou Rowland, August 20.

George S. Moore, Muncie, Ind., to Miss Virginia Cameron of Marion, September 9.

Wilson H. Wyckoff to Miss Mabel Robinson, both of Bedford, Ohio, July 6.

Raymond E. Seth, Seattle, to Miss Helen Wiesner of Omaha, August 10.

Nicola Gigante to Miss Frances M. Jordan, both of Detroit, August 22.

Deaths

Lewis Hugh McKinnie ⊕ Colorado Springs, Colo., since 1929 a member of the Council on Scientific Assembly of the American Medical Association, died at his home in Colorado Springs, November 2. Dr. McKinnie was born in Viola, Ill., in 1874, the son of Dr. E. L. and Mary Moore McKinnie. After education in Monmouth College he obtained his medical degree from Jefferson Medical College in 1902. He had been a practitioner in Colorado since 1905. During the World War he entered service in 1917 as captain, became commander of base hospital 112 in France and was discharged with the rank of lieutenant colonel in 1919. Dr. McKinnie was active in his service to organized medicine, representing the state of Colorado in the House of Delegates from 1914 to 1917, 1922 to 1924, 1926, 1927 and 1929. His recent contributions to The Journal on various sociological and economic aspects of medical practice had attracted much attention.

Erastus Eugene Holt, Sr., Portland, Maine; Medical School of Maine, Portland, 1874; Medical Department of Columbia College, New York, 1875; an affiliate Fellow of the American Medical Association, and honorary member of the Maine Medical Association; member of the American Otological Society and the American College of Surgeons; aged 82; founder and superintendent of the Maine Eye and Ear Infirmary, where he died, October 2, of lobar pneumonia and arteriosclerosis.

Wilbur T. Sarles ⊕ Sparta, Wis., a member of the House of Delegates of the American Medical Association, 1902-1904 and 1906-1908, also a faithful worker on the Board of Trustees from 1908 to 1923, died at his home in Sparta, October 31, of uremia. Dr. Sarles was born in Necedah, Wis., Nov. 14, 1856. He was graduated by Rush Medical College in 1882. Since 1903 he had been continuously a resident of Wisconsin. He was well known as a surgeon and for his leadership in medical affairs.

Luba Robin Goldsmith ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1902; member of the board of health of Pittsburgh in 1903; assistant to chair of physiology, dental department, University of Pittsburgh in 1909 and medical adviser to women students, University of Pittsburgh in 1914; aged 52; died, October 7, at the Mayo Clinic, Rochester, Minn., of pneumonia and peritonitis, following a recent operation.

John Madison Taylor ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1878; member of the American Climatological and Clinical Association; formerly professor of physical therapeutics and dietetics, Temple University School of Medicine; co-author of "Diseases of Children"; aged 76; died, October 3, in the Orthopedic Hospital, of myocarditis and chronic nephritis.

David McAllister Aikman, Wheeling, W. Va.; University of Maryland School of Medicine, Baltimore, 1916; member of the West Virginia State Medical Association and the American College of Surgeons; served during the World War; on the staff of the Ohio Valley General Hospital; aged 37; died, October 4, in a hospital at Washington, Pa., of pneumonia.

George Watson Roberts ⊕ New York; New York Homeopathic Medical College and Hospital, 1889; formerly professor of gynecology at his alma mater; member of the American College of Surgeons; senior consulting surgeon to the Fifth Avenue Hospital; aged 65; died, October 14, of heart disease.

David Jones Matthews, Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1896; member of the Ohio State Medical Association; served during the World War; at one time county coroner; formerly on the staff of the Bethesda Hospital; aged 56; died, October 13, of pulmonary tuberculosis.

Truman R. Stiles, St. Johnsbury, Vt.; University of Vermont College of Medicine, Burlington, 1869; member of the Vermont State Medical Society; formerly member of the state legislature and state board of health; also justice of the peace; aged 84; died, October 3.

Silas Edgar Brown, St. Paul; Medical Department of the University of the City of New York, 1883; formerly coroner in St. Lawrence County, N. Y., and past president of St. Lawrence County Medical Society; aged 75; died, September 12, of coronary thrombosis.

Soren P. Rees ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; formerly assistant professor of medicine at his alma mater; on the staff of the Swedish Hospital; aged 61; died, October 2, of car-

Walter Wilson Jamieson ⊕ Syracuse, N. Y.; Medical Department of the University of the City of New York, 1881; aged 74; on the staff of the Crouse-Irving Hospital, where he died, September 17, of carcinoma of the rectum and intestinal obstruction.

John Octavius Hatcher ⊕ Deming, N. M.; Vanderbilt University School of Medicine, Nashville, Tenn., 1901; past president of the Lawrence County (Ark.) Medical Society; health officer of Luna County; aged 53; died, July 26, of cerebral hemorrhage.

David Hampton Lewis, Albuquerque, N. M.; Western Reserve University Medical Department, Cleveland, 1888; past president of the Dona Ana County Medical Society; aged 70; died, September 29, of acute dilatation of the heart and diabetes mellitus.

Byron Thomas Quigley, St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1891; member of the Missouri State Medical Association; served during the World War; aged 62; died, September 30, of cirrhosis of the liver and chronic myocarditis.

William S. M. Field, Philadelphia; Jefferson Medical College of Philadelphia, 1886; formerly member of the state legislature; for many years connected with the board of health; aged 73; died, October 7, of carcinoma of the stomach and uremia.

Herbert Rockwood Coleman ⊕ Napa, Calif.; University of Kansas School of Medicine, 1917; served during the World War; on the staff of the Victory Hospital; aged 41; died, September 7, in San Francisco, of adenoma of the pituitary gland.

Harry Wilson Knapp, Flint, Mich.; Detroit College of Medicine, 1903; member of the Michigan State Medical Society; served during the World War; formerly on the staff of St. Joseph's Hospital; aged 59; died, October 8, of heart disease.

Patrick Joseph Finnigan, Cambridge, Mass.; Harvard University Medical School, Boston, 1883; member of the Massachusetts Medical Society; formerly member of the board of health and school committee; aged 73; died, October 7.

Lincoln J. Baldwin, Westfield, Ind.; University of Indianapolis Medical Department, 1898; past president of the Hamilton County Medical Society; for many years bank president; aged 71; died, October 9, of carcinoma of the stomach.

Arthur Leon Wright, Catonsville, Md.; University of Maryland School of Medicine, Baltimore, 1908; aged 47; on the staff of the Spring Grove State Hospital, where he died, October 6, following an operation for appendicitis.

William Cordell Harkins, Akron, Ohio; Michigan College of Medicine and Surgery, Detroit, 1891; member of the Ohio State Medical Association; aged 74; died, October 5, in the Aultman Hospital, Canton, of gastro-enteritis.

John Alexander Kinloch, Chicago; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, and L.R.F.P.S., Glasgow, 1886; McGill University Faculty of Medicine, Montreal, Que., Canada, 1886; aged 70; died, in October, at Montreal.

Royal Alfred Whitney, Liverpool, N. Y.; Long Island College Hospital, Brooklyn, 1884; for many years health officer of Liverpool; aged 76; died, September 17, of bronchopneumonia and cerebral arteriosclerosis.

John Wesley Bozarth, Los Angeles; Marion-Sims College of Medicine, St. Louis, 1898; past president of the Dawson County (Neb.) Medical Society; aged 67; died, October 12, in a local hospital, of angina pectoris.

Arthur Van Der Velpen ⊕ Detroit; University of Michigan Medical School, Ann Arbor, 1885; formerly a pharmacist; aged 68; died, October 5, in the Harper Hospital, of arteriosclerosis, nephritis and uremia.

Joseph J. Lumpp, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1901; aged 52; died, September 3, in the Cook County Hospital, of pulmonary tuberculosis and chronic myocarditis.

Charles A. Faber, Toledo, Ohio; University of Michigan Medical School, Ann Arbor, 1890; served during the World War; formerly county coroner; aged 67; died suddenly, October 11, of heart disease.

William Herbert Hemingway, New York; Medical Department of the University of the City of New York, 1886; aged 64; died, September 26, in the Presbyterian Hospital, of retroperitoneal sarcoma.

Herman T. Hessig, Paducah, Ky.; Long Island College Hospital, Brooklyn, 1891; aged 68; died, September 25, in the Municipal Hospital, Tampa, Fla., of chronic nephritis and chronic myocarditis.

Charles Frederick Tucker, Syracuse, N. Y.; University of Buffalo School of Medicine, 1894; aged 67; died, September 21, in the People's Hospital, of chronic parenchymatous nephritis.

George Robert McManus, Stoughton, Wis.; Howard University School of Medicine, Washington, D. C., 1891; aged 69; died, October 2, in a hospital at Mendota, of myocarditis and nephritis.

Thomas M. Triplett, Milford, Neb.; Homeopathic Medical College of Missouri, St. Louis, 1878; aged 89; died, September 30, in the Soldiers' and Sailors' Home Hospital, of pericarditis.

Isaac Joseph Whitney, Unadilla, N. Y.; Eclectic Medical College of the City of New York, 1883; formerly president of the board of health of Unadilla; aged 83; died, October 3, of senility.

Charles Herman De Witt, Glenwood, Iowa; College of Physicians and Surgeons, Chicago, 1883; member of the Iowa State Medical Society; aged 72; died, October 13, of embolism.

John Alden Sherard, Detroit; Meharry Medical College, Nashville, Tenn., 1929; aged 31; on the staff of the Good Samaritan Hospital, where he died, June 14, of lobar pneumonia.

Salmon Blake Axtell, San Diego, Calif.; University of Wooster Medical Department, Cleveland, 1880; aged 76; died, September 29, of cerebral hemorrhage and bulbar paralysis.

John H. Perrin, Marceline, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; formerly a member of the state legislature; aged 83; died, September 19, of hemiplegia.

Domit S. Sphire ⊕ Hardinsburg, Ky.; Kentucky University Medical Department, Louisville, 1903; county health officer; aged 56; died, October 4, of carcinoma of the rectum.

James Cloud Phillips, Lithonia, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; aged 41; died, September 25, in Savannah, of cerebral hemorrhage.

Richard Albert Dreyer ⊕ Wheeler, Wis.; Marquette University School of Medicine, Milwaukee, 1913; aged 44; died, September 24, of a self-inflicted bullet wound.

Harry Carson Olmsted ⊕ Seattle; Rush Medical College, Chicago, 1922; aged 34; died, September 16, in St. Vincent's Hospital, Portland, Ore., of infantile paralysis.

Irwin Proctor Howard, Strawberry Point, Iowa; Hahnemann Medical College and Hospital, Chicago, 1897; aged 56; died, October 1, of carcinoma of the tongue.

Finus Eliot Grace, Hopkinsville, Ky.; University of Tennessee Medical Department, Nashville, 1879; aged 83; died, September 29, in Howell, of myocarditis.

David William Manson, Kansas City, Mo.; Kansas City Medical College, 1902; served during the World War; aged 58; died, September 24, at Westboro.

Charles Davis Gaylord, Long Beach, Calif.; Jefferson Medical College of Philadelphia, 1894; aged 61; died, September 27, of carcinoma of the liver.

George Franklin Spencer, San Diego, Calif.; Rush Medical College, Chicago, 1884; aged 71; died, September 14, of arteriosclerosis and myocarditis.

Morris Marvin Price, Salyersville, Ky.; Hospital College of Medicine, Louisville, 1907; aged 46; died, October 2, of a self-inflicted bullet wound.

Pelham L. Felder, Elloree, S. C.; Medical College of the State of South Carolina, Charleston, 1892; aged 62; died, September 16, of myocarditis.

Frank Adelbert Morse, Lynn, Mass.; Harvard University Medical School, Boston, 1887; aged 71; died, October 2, of cerebral arteriosclerosis.

Edward Vincent McGoldrick, Brooklyn; Long Island College Hospital, Brooklyn, 1902; aged 53; died, September 8, of acute nephritis.

John H. Lobdell, Flatrock, Mich.; Michigan College of Medicine, Detroit, 1881; aged 71; died, in September, of cerebral hemorrhage.

Will H. Lester ⊕ Greenville, Mich.; Kansas City Medical College, 1899; formerly mayor; aged 57; died, in October, of heart disease.

Benson Hillyard Hamilton, Sault Ste. Marie, Ont., Canada; Medical Faculty of Trinity University, Toronto, 1903; died, June 12.

Simon S. McCormick, Hublersburg, Pa.; Eclectic Medical Institute, Cincinnati, 1889; aged 67; died, August 31, of uremia.

Ernest C. Partee, Stephens, Ark. (licensed, Arkansas, 1903); aged 59; died, September 19, of diabetes mellitus.

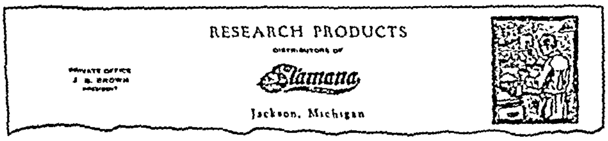
Bureau of Investigation

STAMANA (VIGARIS)

Another "Sexual Rejuvenation" Fraud

For a few years past, the Bureau of Investigation has been receiving inquiries regarding a product first known as "Stamana" and later as "Vigaris." It has been put out from Jackson, Mich., by one J. B. Brown, sometimes known as Blaine Brown. This person's method of exploiting his fraud was to purchase "sucker lists" from New York and Chicago concerns that make a business of selling and renting such lists, and then circularizing the names thus obtained. Some of the stationery used by Brown carried his name, describing him as a "Consultant-Translator, Publisher and Dealer in Scientific and Educational Works, Courses and Methods of Instruction." Other stationery carried as the main name, "Research Products, Distributors of Stamana," and in the corner of the stationery the statement, "Private Office, J. B. Brown, President."

Brown's story in his come-on literature was to the effect that nearly thirty years ago he had been rejected for life insurance and was told by the examining doctor that his vitality "was pretty well used up" and that he was in "the senile condition of a man about seventy years." Further, that three specialists all agreed in this diagnosis. The story then continued that his "fire of youth" having about died out, left him with "no ambition to do the very things men are created for." At about this time, continued the Brown story, he became interested in a drug store, which gave him access "to the private formulas of the best physicians who were all the time sending their patients to the store with prescriptions to be filled." Brown further stated that he was interested in anything that was prescribed for men afflicted like himself, and out of the prescriptions, he selected some that brought him "back to abundant strength and vigor." All this, of course, leading up to the statement that if the person receiving a circular-letter would send Brown $2, he would send him a liberal supply of this prescription which he sold under the names "Stamana" and "Vigaris"—"in a perfectly plain, sealed package."



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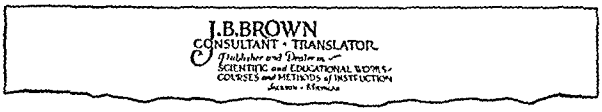

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COURSES and METHODS of INSTRUCTION
Jackson · Michigan

Jackson, Mich., from which town Brown conducted his fraud, was for many years notorious for the medical mail-order swindles that were carried on in it. During the past few years, however, the authorities of the state have been taking action against medical frauds within its borders. In the latter part of last year (1930), Brown was warned by the Michigan officials that he was operating in violation of the state law and he is said to have agreed to leave the state. Instead, however, he had his mail addressed to Angola, Ind., where he employed a person (at $50 a month) to receive the incoming mail and post outgoing mail. The employee forwarded the mail received daily to Brown at Jackson, Mich., and Brown operated the business from his residence in that town.

On August 28, of this year, Brown was called on by the postal authorities to show cause on September 18, why a fraud order should not be issued against him. This date was subsequently extended to October 2. Brown did not appear, nor did he send any one to appear for him, but he did forward a written answer to the charges to the postal authorities. The Hon. Horace J. Donnelly, Solicitor for the Post Office Department, went into the evidence in the case and found that the thing was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, and recommended that a fraud order be issued against Blaine Brown at Angola, Ind., and Jackson, Mich.

It was brought out in Judge Donnelly's memorandum to the Postmaster General that Brown has, more recently, changed the name of his nostrum, Stamana, to Vigaris. The "treatment" came in the form of capsules, of which there were four kinds—red, green, gray and black. Each red capsule contained 2 grains of damiana and ⅛ grain of zinc phosphide; each green capsule contained the same; each gray capsule contained 1/20 grain of yohimbine, mixed with starch, while each black capsule contained 1/30 grain of yohimbine, mixed with charcoal. The yohimbine capsules Brown is said to have prepared at his house; the red and green capsules were prepared for him by a drug concern (unnamed) in Cleveland, *Ohio*.

Brown had no laboratory; he is not a physician nor a chemist and does not employ such a person. The "treatment" was a stock affair, and the victim who sent for Brown's remedy for sexual debility, whether he was over sixty or under thirty, received the same package of drugs.

Brown is reported to have sent out between five and six thousand letters a week to prospective victims. He prepared his own literature and did a business estimated at between $8,000 and $10,000 annually. In April of this year, when Brown was interviewed by a postoffice inspector, he claimed that he was making no money in the business and promised to discontinue it about June 1; he failed to keep that promise. The mails were closed to this swindle October 19, 1931.

Correspondence

PROBLEMS IN POLIOMYELITIS

To the Editor:—One cannot but be amazed at the complacent assurance with which Dr. Draper, in his article "Significant Problems in Acute Anterior Poliomyelitis" in The Journal, October 17, sums up that "a preataxic tremor stage diagnosis of poliomyelitis can and should be made."

Despite the fact that the general systemic infection period does not offer any hint whatever of a subsequent poliomyelitic, or any other, development; despite the fact that the latent period, as in a case now in my wards, may be as long as six days; notwithstanding that the "passage period" may be limited to a couple of hours, we are told that "having these facts at our disposal, one should be able to prevent paralysis."

Furthermore, while "it has been definitely shown that immune human serum can block paralysis in monkeys infected with poliomyelitis virus," there is still inadequate proof that immune serum has prevented palsy in human beings actually afflicted with the disease in question.

The fact that children who have been exposed to infantile paralysis and have, shortly thereafter, shown systemic evidences of an infection, have been given immune serum and then failed to develop paralysis is, to my mind, as much or more evidence that no poliomyelitis existed in them as that the serum aborted the disease.

When all is said and done, one can never confirm a diagnosis of acute poliomyelitis in a case in which paralysis does not develop. The mechanical irritation produced in frequent entrances into the spinal canal, as advocated by Draper, might very readily produce increase in fluid pressure and in globulin, and in cell count up to as small a number as 50 per cubic millimeter, particularly since some authors question the significance of cell counts up to several times that number.

Furthermore, as to the value of immune serum, we have the example of measles. Whether we agree or not on the value of immune serum in modifying or preventing measles when the serum is given prior to the period of invasion, few, if any, of us consider it of value after this period has begun.

At the beginning of his article, Dr. Draper states that "there are still certain key points [in acute anterior poliomyelitis] which remain unsolved." Despite my other objections, I agree very strongly with Dr. Draper in this. But I most strongly protest such assumption of hypotheses, as axioms; and of definite inferences drawn from what are, unfortunately, still quite indefinite data.

No one, of course, can object to the administration of parental whole blood, intramuscularly, in the presence of an indefinite infection. Many pediatricians have been giving parental blood to children, for years, as a shotgun multiple immunizing measure, when such children were shortly to be exposed to insanitary conditions, such as visits to eastern Europe. What diseases, if any, were actually prevented thereby will, however, always be a matter of pure speculation.

In the clinical handling of acute anterior poliomyelitis, we have progressed no further than Flexner and Stewart's work, reported over three years ago.

Robert A. Schless, M.D., Philadelphia.

"TREATMENT OF HEMATEMESIS BY THE RETENTION CATHETER"

To the Editor:—In the article by Dr. Horace W. Soper in The Journal, September 12, Dr. Soper suggests treating gastric hemorrhages by introducing the duodenal tube and leaving it there, first for washing the stomach, later when the tube has reached the duodenum for feeding. I would like to mention that this method has been used by me and by some of my followers since 1910. Dr. Soper introduces the tube through the nostril; I give it usually through the mouth, which represents a more natural way.

Ever since duodenal alimentation has been employed in gastric hemorrhages there has seldom been any need of blood transfusion, as the ample nutrition soon gives the organism a good chance to manufacture and replace the lost blood.

I am pleased to see that Dr. Soper had good results with the tube treatment.

Max Einhorn, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ERYTHREMIA OR POLYCYTHEMIA VERA

To the Editor:—A white man, aged 38, weighing 230 pounds (104 Kg.), who is engaged in the ice and cold storage business, is suffering from vertigo, irritability, forgetfulness, loss of energy and impaired appetite. There is a moderate conductive deafness of the left ear, the drum is retracted and the septum is deviated to the left, high up. The tonsils were removed three years ago with clean enucleation. The heart and lungs are normal. The abdomen is fat, but there are no palpable masses. I was unable to palpate the spleen. All reflexes are normal and there is no incoordination. The pupils are round and equal, and they react to light and convergence and consensually. The eye muscles are agile. No cranial nerves are involved. The skin does not show dryness, lesions, cyanosis or edema. The hair has normal texture, and there is no alopecia, excessive sweating, or loss of weight. The fundi of the eyes show no abnormality. On examination the following observations were made: blood pressure, 120 systolic and 80 diastolic; pulse 70; temperature, 98.6; basal metabolism, —12. Examination of the blood, Aug. 25, 1931, showed red cells, 8,440,000 and white cells, 11,500; the differential count was polymorphonuclears, 61 per cent; mononuclears, 6 per cent; lymphocytes, 32 per cent; basophils, 1 per cent; hemoglobin (Dare), 70 per cent. August 31, the red blood cells numbered 6,520,000; no white blood cell count was made; the differential count was: polymorphonuclears, 72 per cent; mononuclears, 1 per cent; lymphocytes, 19 per cent; transitionals, 9 per cent. September 4, blood examination showed red blood cells, 6,840,000; hemoglobin (Dare), 85 per cent; white blood cells, 10,700. The differential count was: polymorphonuclears, 75 per cent; mononuclears, 4 per cent; lymphocytes, 20 per cent; eosinophils, 1 per cent. A fellow physician furnished the following information: Feb. 10, 1930, the red blood cells numbered 5,500,000; the white blood cells, 9,000; the hemoglobin was 80 per cent, and the differential count was normal. No atypical cells were found at any counts, but some red blood cells did not stain as deeply as others. No poikilocytes, anisocytosis, normoblasts or marrow cells were found at any time. The patient has been living in the same locality all his life; he is of a neurotic type and has to take medicine on the least provocation. He has a loose sacro-iliac joint which has been treated by an orthopedist, but it causes frequent pain, for which sedatives are required. Recently he has been taking amidophen in rather large quantities. Would this be considered a polycythemia vera or an erythremia? Would the polycythemia be caused by the drug amidophen or any ingredients in this compound? Would you suggest the prognosis and the best method of handling in either case? What is the opinion of use of phenylhydrazine hydrochloride in this condition; what should be its dose and frequency? What is the accepted opinion on roentgen therapy of the long bones? What is the accepted opinion on bleeding for severe vertigo?

E. R. Ferguson, M.D., Cleveland, Tenn.

Answer.—There are many features of this case that resemble those noted in erythremia or polycythemia vera. The mode of onset and the symptoms presented are quite characteristic. However, an absolute diagnosis of the primary type of polycythemia may at times be difficult to establish without prolonged careful observation. A number of the so-called classic features of this disease have been variable in cases reported. The peculiar reddish blue color of the skin, which is not present in this case, has been inconstant in other case reports. Christian has emphasized that color changes in the skin may be absent in well developed cases of erythremia. Splenic enlargement, which was also reported absent in this case, varies considerably and is independent of the clinical picture. Palpable enlargement of the spleen may be absent for some time in typical cases. In the classic case the erythroblastic hyperplasia is reflected in the peripheral blood in qualitative as well as in quantitative changes. There is usually some evidence of red cell immaturity, which may vary in changes in shape, size, staining reaction or embryonic forms. While our correspondent does not report any of these changes, unevenness in depth of staining reaction of the red cells should be looked on as suggestive evidence. Perhaps careful observation of the blood will reveal more definite changes. Reticulocyte counts will aid in evaluating the response. Moderate leukoblastic activity (neutrophilia) is also present in the typical case and is present here. Careful study of the granulocytes for signs of immaturity should be made. It is interesting to note the low basal metabolic rate in connection with meager signs of erythroblastic activity. In the typical cases of erythremia reported, the basal metabolism is increased. Minot and Buckman, however, have shown that their cases with the highest rate showed greater bone marrow activity than those with lower rates. It would be interesting to check this observation. Excluding the group of relative polycythemias due to blood concentration, there are two main pathologic states in which polycythemia is an essential feature:

1. Excessive erythroblastic activity of the bone marrow from an unknown cause (erythremia).
2. Increased erythrocyte production from anoxemia, which may be due to a variety of known causes (erythrocytosis). It is an effort on the part of the organism to compensate for deficient oxygenation.

The second question concerns the latter part of this discussion. Polycythemia due to drugs falls into the class of erythrocytosis. It occurs with the use of those drugs which cause a defect in the oxygen combining power of hemoglobin. Consequently, cyanosis is an invariable accompaniment unless a severe anemia is present. Amidophen is the coined name of Eli Lilly & Co. for a mixture of amidopyrine, acetphenetidin, caffeine and extract hyocyamus. Amidophen contains two drugs which may cause a defect in the oxygen combining power of hemoglobin; viz., caffeine and acetphenetidin. (Amidopyrine is usually well borne.) The amount of these drugs in this proprietary mixture is, however, small and it would necessitate much larger amounts to produce this result. The report of Harrop and Waterfield in The Journal, Aug. 30, 1930, on aniline derivatives may be of interest in this consideration.

Erythremia is a chronic disease with spontaneous remissions and exacerbations. Prognosis so far as life is concerned is fair, but recovery for true polycythemia is unknown. The condition is eventually fatal, usually terminating in sudden death as complications of cerebral vascular disturbances, hemorrhage and thrombosis or circulatory failure. Some patients live to die of intercurrent disease. The prognosis of erythrocytosis depends on the removal of the cause and the prognosis of that condition.

The treatment of erythremia is far from satisfactory. The measures now available produce no more than an alleviation of symptoms. Because of the natural history of the disease, chronicity with spontaneous remissions and exacerbations, it is difficult to evaluate the therapy exactly. Most forms of therapy recommended for this condition are designed to reduce the red blood cells.

Phenylhydrazine hydrochloride is an example. Giffin and Conner, in The Journal, May 4, 1929, advised a treatment routine. These authors recommend a total starting dose of from 1.5 to 3.5 Gm., divided in three daily doses in severe cases, and for mild cases from 0.1 to 0.3 Gm. each week. The dose of the drug should be determined by the physician's judgment, but it is safer to start out with small doses at weekly intervals. Repeated blood examinations are necessary to check the results of therapy and to guard against the continued use of the drug in the presence of a low red blood cell count.

There are several treatment principles which must be followed carefully:

1. Treatment should be given only to ambulatory patients.
2. It is dangerous to administer the drug to patients above the age of 60 and to those presenting any evidence of arteriosclerosis, or hepatic, cardiac or renal disease.
3. Treatment of the far advanced case is not advised.
4. The administration of the drug should be carefully controlled by repeated blood examinations.

While the results from this form of treatment are conflicting, many cases are temporarily benefited under careful medical supervision. However, the dangers of the drug are many and it is best to reserve this therapy for those cases which cannot be aided by more conservative measures. One must decide whether the risks involved in the use of chemical poisons justify the improvement noted. Opinions differ. It would seem that as long as these methods are not curative it would be more plausible to select a conservative method of treatment when the risk is small. Radiation over the long bones with systematic exposure by radium or x-rays can produce considerable alleviation of symptoms. This form of treatment should also be carefully checked by blood examination.

Bleeding for the relief of headache and vertigo has been found effective. The result is, however, transient, because the blood is soon restored to its previous state. One must consider the possibility that repeated bleeding may intensify the polycythemia because of stimulation of the hyperplastic bone marrow. Increase in the pressure of cerebrospinal fluid is usually present, and headache and vertigo often may be relieved by lumbar puncture.

MENORRHAGIA

To the Editor.—A white woman, aged 25, the mother of two children, which were delivered normally, has had severe menorrhagia each month since the birth of the last child in January of this year. The flow is profuse, amounting to hemorrhages, and is associated with severe pain in the right lower quadrant of the abdomen. Between the menstrual periods she is in excellent health and there is no leukorrhea, and I cannot find any evidence of gross pathologic changes on vaginal examination. A laparotomy was performed in July, at which time the appendix was removed. The right tube was thick and inflamed and was removed. There were numerous adhesions from both ovaries to the intestine. The ovaries were bound down by adhesions in the pelvis but appeared healthy. The adhesions were resected and one or two small cysts were removed. Since the operation there has been no improvement and in fact the bleeding has been worse. Please omit name and town. M.D., Pennsylvania.

Answer.—The menorrhagia described may be of the so-called functional type, and some disturbance in one or more of the glands of internal secretion is most likely responsible for it. A curettement should be performed, for sometimes this simple procedure brings about a temporary cure and, though rarely, even a permanent cure. Furthermore, a microscopic study of the uterine scraping might reveal an anatomic basis for the excessive menstrual periods. The most likely pathologic condition found in these cases is hyperplasia of the endometrium.

The characteristics of this disease are an increase in the number of stroma cells and an enormous distention of the glands, producing the so-called swiss cheese pattern. Regardless of the period in the menstrual cycle in which the curettement is performed, the pattern is the same. This, of course, is in contrast with that found in women who have a normal endometrium and a normal cycle.

Hyperplasia of the endometrium is most likely due to some disturbance in the pituitary; hence treatment should logically be directed toward this gland. Unfortunately, no specific way of doing this is available. Pituitary preparations when administered hypodermically frequently check the excessive bleeding but they do not cure the condition. Pituitary preparations are especially helpful when the uterine musculature is relaxed. Many ovarian preparations have been recommended. Thyroid preparations have been used in some cases. But usually little benefit is derived from these products.

In many cases repeated curettements bring about a cure. This treatment appears illogical because hyperplasia is not really a local disease; but there are undoubted cures following this procedure. If repeated curettements fail to produce an amelioration of the bleeding, mild roentgen or radium therapy should be tried because it destroys the graafian follicles. However, this treatment should be administered only by an experienced radiologist in conjunction with an expert gynecologist; if the treatment is not properly carried out in a young woman, a permanent menopause may result even though this is only a remote possibility. In the case cited, an inflammatory process in the ovaries may be responsible for the menorrhagia; and even if this is the case, roentgen treatment may help.

Another reason for a curettement is that not infrequently this operation will reveal polyps, a polypoid endometrium or submucous fibroids, all of which may be the cause of the excessive bleeding. The removal of the first two by means of the curet usually relieves the condition, and the fibroids may have to be removed surgically before the excessive bleeding will subside.

The last resort is a hysterectomy; but this is rarely necessary.

POSSIBLE DIAGNOSIS OF POLIOMYELITIS

To the Editor:—A boy, aged 6 years, somewhat underweight but appearing quite wiry, well tanned from the sun and having had cod liver oil daily since infancy all during the fall and winter months, has a past history entirely negative, except for fairly profuse bodily sweating at night. He did not feel just right for about a week and then his mother noticed one morning that his head was retracted. I saw him two days ago, twenty-four hours after the onset of the symptom. His temperature was 99.2 F. He did not complain of headache, vomiting, nuchal pain or spinal pain. In fact, except for the slight fever and the retracted head, I could not find a thing. His head was drawn backward to its limit. There was some tenderness on anterior and lateral bending of the head. The posterior muscles of the neck seemed hard and spastic. There was some tenderness over the last cervical vertebra. As he had fallen from a barn about a week before, I had him examined and the neck roentgenographed by an orthopedic specialist, who reported that the neck vertebrae appeared normal. A pediatrician examined him and said that it was not poliomyelitis or meningitis, although he did not make a puncture. The latter examiner did not know just what it was. I considered that it might be just an acute myositis in the posterior neck muscles, possibly from a draft of air blowing on his neck while he was sweating in bed. I ordered epsom salt, hot packs locally, and small doses of acetphenetidin and acetylsalicylic acid internally, together with a laxative. Today the neck seems to be a little more movable with less pain. Because of the history of sweating I had an idea that this retraction might be a form of tetany from calcium deficiency, so I am giving him lime water and cod liver oil combined with viosterol. On looking over the available literature I cannot find mention of tetany taking this form. Is the diagnosis of tetany possible here; if not, would you please tell me your diagnosis? Please omit name. M.D., New York.

Answer.—It is not likely that this was tetany, but since that was suspected the blood calcium should have been estimated before calcium treatment was initiated. To have tetany causing only retraction of the head without spasms of the hands and feet is very improbable. The diagnosis of poliomyelitis of meningeal type cannot be dismissed and is the most probable one if the symptoms subside entirely or if some degree of weakness in one or more of the neck muscles should persist. Just at this time cases of this type have been observed along with fairly typical cases of poliomyelitis. Acute myositis due to some infection is another possibility, but poliomyelitis is the more probable diagnosis.

ADENOMA OF THYROID AFTER PREGNANCY

To the Editor.—Kindly advise me in the following case: A small swelling appeared on the right side of the neck, anteriorly, in a woman who was about eight months pregnant. She gave birth to her second child in a normal manner, about five months ago. The swelling has increased slightly in size, but there have been no other signs or symptoms. The mother has continued nursing her baby until now. Her menstruation has as yet not returned. This swelling is soft, cystic in feel, about the size of a plum and moves with the act of swallowing, probably being connected with the thyroid. The latter is not palpable. My diagnosis is a cystic adenoma, which generally occurs during pregnancy. The woman is terribly worried over its presence What treatment, if any, is necessary to reduce its size, assuming that the basal metabolic rate is within normal limits? What are the possibilities of the adenoma, assuming toxic influences? If when menstruation returns the mass does not disappear after some time, is surgery indicated? Kindly omit name. M D., New York.

Answer.—Medical treatment of a cystic adenoma of the thyroid, occurring in pregnancy, is frequently disappointing. Sodium iodide in 10 grain (0.65 Gm.) doses, three times daily after meals, may be helpful if given continuously over a period of two or three weeks; the results obtained are not as satisfactory as in cases showing a diffuse enlargement of the thyroid. The danger of complicating toxemia, or malignant degeneration, is slight. Recourse to surgery will be necessary only in case of pressure symptoms or continued annoyance because the nodule is unsightly or causes worry. In this connection it may be well to call attention to the frequent incidence of thyroid disturbances in association with pregnancy. Deficiency of the thyroid at this time is particularly common in goitrous districts, and hyperthyroidism is also not unusual. The physician in charge of obstetric cases should be on the alert for evidences of either decreased or increased thyroid activity and should not hesitate to ask for metabolic rate determinations in patients who gain too little weight or who become unduly fat or who develop inexplicable edema.

DETERIORATION OF DIGITALIS

To the Editor:—At a county medical meeting some time back, a well known cardiologist advised the use of an alcoholic vehicle of at least 65 to 70 per cent alcohol content in dispensing tincture of digitalis to patients for use by teaspoonful doses, in order to prevent the rapid deterioration which, he asserted, took place when 70 per cent tincture of digitalis was mixed with ordinary elixir of lactated pepsin of 10 to 12 per cent alcoholic content. This was advised as a fairly accurate way of avoiding the use of varying size medicine droppers, with their larger degree of error. During the course of some postgraduate work in heart diseases, I was told that there was no need of such caution here, since the deterioration in the weaker mixture would not be of great moment. What are the facts here? The method employed was to use a measured amount of tincture of digitalis and a definite amount of the vehicle so that a certain dose of digitalis would be obtained in each drachm, without risking the error of the patient using any ordinary dropper each time. Of course, it is realized that the size of teaspoons also varies, but the variation is rather constant, since the patient uses the same size teaspoon each time, and he does not have to count drops or worry about the dose. Since if he uses the same spoon or set of spoons always, and his dose is regulated by its effect on his heart anyway, if the teaspoon used is a bit in error, no harm is done for his dose is regulated according to his own measuring tools, which he will use in the home. The vehicle with higher alcoholic content (as lactated pepsin elixir made up to 70 per cent with grain alcohol or the compound tincture of lavender) makes a very disagreeable mixture to take, and a comparison of results using the two vehicles does not seem to justify the high alcoholic content so far as I can tell. Again, the amount dispensed is only enough for two or three weeks' treatment and no visible change has often been noted. Also, the psychic effect on the patient seems better since it is much harder to make rural patients take a medicine that requires careful dropping out perhaps two or three times a day for months or years than it is to have them faithfully continue taking the medicine using the more familiar teaspoon Is it not more important that the attending physician know his preparation and the usual effect of a certain dosage as he gives it on his patient and so to gage his prescription than to accept the additional burden of disciplining and educating a large class of cardiac patients in the accurate use of a minim dropper which is unfamiliar to them, insanitary, and enough extra trouble to the patient to encourage stopping treatment? Please omit name.

M D , Illinois.

Answer.—The active principles of digitalis are glucosides, which decompose under a variety of conditions but which, for the greater part, are fairly stable. The elixir of pepsin of the National Formulary of 1916 contained 0.4 per cent (by volume) of hydrochloric acid, and that concentration of hydrochloric acid is quite sufficient to decompose some of the active principles of digitalis fairly rapidly, and probably all of them to some degree. This action is largely independent of the concentration of alcohol used in making the tincture of digitalis.

It is impossible to discuss adequately, in the limited space available here, all the causes of the deterioration of digitalis, but it may be stated that the official tincture of digitalis decomposes very slowly. Even the infusion is fairly stable, and Hatcher and Eggleston (*Am. J. Pharmacy* **85**:203, 1913) reported that no deterioration could be detected in an infusion which had been kept sealed during two years and five months.

The foregoing facts indicate that the official tincture of digitalis, which contains about 65 to 70 per cent alcohol, may be mixed with aqueous or alcoholic liquids without fear of rapid deterioration, provided there is no disturbing substance, such as hydrochloric acid, present. The addition of 1 cc. of tincture of digitalis (the average dose) to 7.5 cc. of the official aromatic elixir affords a mixture that is not disagreeable.

Digitalis U. S. P. may be dispensed conveniently in the form of tablets, which are considered quite stable.

TREATMENT OF X-RAY BURN

To the Editor:—Please outline treatment for a deep ulcer of the anterior wall of the abdomen which formed one and a half years ago as the result of an x-ray burn. Please omit name.

M D., New York.

Answer.—Many different kinds of treatment have been advised and used for indolent ulcers following roentgen and radium treatment: methods such as heliotherapy, ultraviolet radiation, heat and various topical applications. Occasionally, some of these methods seem to be followed by fairly satisfactory results, but it is doubtful whether any of them are really useful. In most if not all these cases, it is probable that the recovery was spontaneous, although the method used might have been of some benefit. Small ulcers often heal spontaneously and large ones occasionally do so. By far the best treatment for these cases is plastic surgery. It is necessary to remove all the affected tissue and one must go deep enough to obtain a good blood supply and healthy granulations. Repair may be made by graft or a flap. If the operation is properly done, the patient is soon permanently cured. Without such operation the ulcer may heal in time, spontaneously, or possibly as a result of the various treatments mentioned, but even so the resulting scar tissue will be a menace throughout the remainder of the patient's life because such tissue is likely to ulcerate again as a result of slight traumatism or even spontaneously. Such ulcers, together with keratoses that are almost certain to develop, eventually may terminate in epithelioma.

EPHEDRINE IN HAY FEVER

To the Editor—Is there any danger from the frequent use of ephedrine as a local nasal treatment for the relief of hay fever? If it is used each time sneezing and irritation develop in the nostrils, will better results obtain than if it is taken as a tablet internally?

M.D., Kansas.

Answer.—There is practically no danger from the frequent use of ephedrine as a local nasal treatment in hay fever. In a few instances, patients show nervousness and a slight tremor; in these cases it is better to reduce the use of ephedrine to a certain extent. In those cases in which local application in the nose produces much irritation, it is often better to give the ephedrine hydrochloride by mouth in the form of capsules each containing about three-eighths grain (0.025 Gm.) of the preparation. When untoward symptoms from ephedrine appear, they may often be reduced or relieved entirely by the addition of a small amount of one of the barbituric acid preparations to the ephedrine when it is taken by mouth.

IMMUNIZATION WITH DIPHTHERIA TOXOID

To the Editor—I am interested in immunizing all children against diphtheria I have been using diphtheria toxoid exclusively the last eighteen months. From my reading and reports of health authorities, it seems that toxoid is much superior to toxin-antitoxin. I would like your opinion on this question. Some manufacturers of toxoid are advising two injections as being sufficient. I have used three in every case. I have just learned of a series of cases in which only two injections of toxoid were given and only about 50 per cent were negative to the Schick test, whereas, when three injections of toxoid were given, immunity was reached in from a third to half the time required for toxin-antitoxin and a much greater percentage were negative to the Schick test. This being true, why not advocate strongly the exclusive use of diphtheria toxoid in this work? I have not had any reaction from toxoid.

Charles H. Emery, M.D., Bedford, Ind.

Answer.—According to the reports, diphtheria toxoid immunizes better than the present dosage of toxin-antitoxin. Three doses of the toxoid will immunize more than two doses. Reactions are not troublesome in immunizing children with toxoid, and in immunizing adults unduly severe reactions may be avoided if the three regular doses are preceded by two preliminary doses of 0.1 and 0.25 cc. of the toxoid at an interval of one week. Diphtheria toxoid is rapidly replacing toxin-antitoxin in immunization against diphtheria.

PERCENTAGE LOSS OF HEARING

To the Editor.—What is the most generally accepted instrument for the testing of percentage loss of hearing?

M. H. Newton, M.D., Little Falls, N. Y.

Answer.—The generally accepted appliances for testing hearing to determine the percentage loss of hearing are one or another type of audiometer. The instrument most often used for office practice is the 2 A audiometer made by the Western Electric Company. There is a larger instrument, the 1 A, which is expensive and is used largely for research purposes. Among the other good instruments are the Jones-Knudsen audiometer, the Dean-Bunch, the S. W. Kranz and Dr. John Guttman Audiometers. In some of the instruments, especially the type devised by the Western Electric Company, the readings are given in terms of the number of sensation units lost. The figure can then be converted into percentage of loss of hearing. By means of the "constant" of decrement of damping, one is able with tuning forks to get the same reading or same curve showing the loss of hearing figured in sensation units, and this may then be converted into percentage of loss of hearing. To do this the tuning forks must be properly calibrated and supplied with the "constant" of decrement for each fork.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden.

DELAWARE: *Regular and Homeopathic.* Wilmington, Dec. 8-10. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

FLORIDA: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

KANSAS: Kansas City, Dec. 8. Sec., Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

MAINE: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, Dec. 8-11. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr Stephen Rushmore, 144 State House, Boston.

NEBRASKA: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NORTH CAROLINA: *Endorsement.* Raleigh, Dec. 7. Sec., Dr. John W. MacConnell, Davidson.

OHIO: Columbus, Dec. 8-10. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

TEXAS: Fort Worth, Nov. 17-19. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

UTAH: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

VIRGINIA: Richmond, Dec. 8. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

WEST VIRGINIA: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee.

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, July 4:

Hospitals Approved for Intern Training:

Mercy Hospital, Buffalo.
St. Vincent's Hospital, Staten Island, N. Y.
L. Richardson Memorial Hospital, Greensboro, N. C.
James Walker Memorial Hospital, Wilmington, N. C.
Jameson Memorial Hospital, New Castle, Pa.
Northeastern Hospital, Philadelphia.
St. Luke's and Children's Homeopathic Hospitals, Philadelphia.
Washington Hospital, Washington, Pa.
Baroness Erlanger Hospital, Chattanooga, Tenn.
St. Joseph's Hospital, Tacoma, Wash.

Hospitals Approved for Residencies in Specialties:

General Hospital of Fresno County, Fresno, Calif.
Las Encinas Sanitarium, Pasadena, Calif.
DeEtte Harrison Detwiler Memorial Hospital, Wauseon, Ohio.
Jeanes Hospital, Philadelphia.
Mary J. Drexel Home and Children's Hospital, Philadelphia.
Children's Hospital, Chattanooga, Tenn.

Connecticut July Report

Dr. Thomas P. Murdock, secretary, Medical Examining Board, reports the oral and written examination held at Hartford, July 14-15, 1931. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Twenty-eight candidates were examined, 25 of whom passed and 3 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Yale University School of Medicine	(1929)	79.5, 80.8, (1930) 79.4, (1931) 85.7
Georgetown University School of Medicine	(1930)	78.7
Johns Hopkins University School of Med.	(1927) 81.7, (1931)	82.3
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930)	85.2
Boston University School of Medicine	(1930) 79.2,	82.7
Tufts College Medical School	(1929)	77.5, 87.4, (1930) 78.2, 78.6, (1931) 82.6
Columbia University College of Phys. and Surgs	(1930)	76.2
Cornell University Medical College	(1931)	84.5
Long Island College of Medicine	(1930)	77.7
University and Bellevue Hospital Medical College	(1929)	81.9
Jefferson Medical College of Philadelphia	(1930)	80.5, (1931) 83, 84.3, 84.9
University of Toronto Faculty of Medicine	(1929)	80.5
University of Paris Faculty of Medicine	(1926)	78.3

FAILED

College	Year Grad.	Per Cent
Georgetown University School of Medicine	(1930)	72.7
Osteopaths		40,* 65.2†

Dr. Murdock also reports 13 physicians licensed by endorsement at a meeting held, July 28, 1931. The following colleges were represented:

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine	(1924)	W. Virginia
Harvard Univ. Med. School	(1896) Rhode Island, (1928)	N. B. M. Ex.
Tufts College Medical School	(1928),‡ (1930, 2)	N. B. M. Ex.
University and Bellevue Hospital Medical College	(1928)	New York
University of Pennsylvania School of Medicine	(1927)	New York
Woman's Medical College of Pennsylvania	(1911)	Maryland
University of Nashville Medical Department	(1905)	Florida
University of Virginia Department of Medicine	(1926)	New York‖
McGill University Faculty of Medicine	(1908),§ (1930)	N. B. M. Ex.

* Examined in surgery only.
† Examined in medicine and surgery.
‡ License withheld until payment of fee.
‖ License withheld until definite residence intention is declared.
§ Licensed by special exemption.

Michigan Endorsement Report

Dr. F. C. Warnshuis, secretary, Michigan Board of Registration in Medicine, reports 71 physicians licensed by the endorsement of credentials from Jan. 1 to Aug. 12, 1931. The following colleges were represented:

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
Stanford University School of Medicine	(1927)	California
University of California Medical School	(1927), (1930)	California
Yale University School of Medicine	(1928)	Penna.
George Washington University Medical School	(1928)	Dist.Colum., (1929) Ohio
University of Georgia Medical Department	(1928)	Georgia
Loyola University School of Medicine	(1928, 2), (1930)	Illinois
Northwestern University Med. School	(1927), (1928), (1929)	Illinois, (1930) Minnesota
Rush Medical College	(1921, 2), (1928), (1930)	Illinois
University of Illinois College of Medicine	(1916)	Wisconsin, (1928), (1930) Illinois
Indiana Univ. School of Med.	(1927), (1928), (1929), (1931)	Indiana
State University of Iowa College of Medicine	(1926), (1927, 4), (1928), (1929, 3)	Iowa
University of Kansas School of Medicine	(1928)	Kansas
University of Louisville School of Medicine	(1927)	Kentucky
Tulane University of Louisiana School of Medicine	(1924)	Louisiana
Johns Hopkins University School of Medicine	(1926)	Maryland
Harvard University Medical School	(1920)	Mass.
Tufts College Medical School	(1913)	Mass.
Detroit College of Medicine	(1896)	Wisconsin
University of Minnesota Medical School	(1927)	Minnesota
Washington Univ. School of Med.	(1919), (1927), (1930)	Missouri, (1928) Illinois
Creighton University School of Medicine	(1925)	Kansas
University of Nebraska College of Medicine	(1929)	Kansas, Nebraska
University of Buffalo School of Medicine	(1911)	New York
Ohio State University College of Med.	(1925), (1928), (1929)	Ohio
University of Cincinnati College of Medicine	(1928), (1929)	Ohio
University of Oklahoma School of Medicine	(1930)	Oklahoma
University of Pennsylvania School of Medicine	(1923)	Penna.
University of Pittsburgh School of Medicine	(1926)	Penna.
Medical Coll. of the State of South Carolina	(1927), (1928)	S. Carolina
Meharry Medical College	(1929, 2), (1930, 2)	Tennessee
Vanderbilt University School of Medicine	(1915), (1929)	Tennessee
Baylor University College of Medicine	(1929)	Texas
Medical College of Virginia	(1928)	Virginia
University of Virginia Department of Medicine	(1921)	W. Virginia
Marquette University School of Medicine	(1929)	Wisconsin
University of Toronto Faculty of Medicine	(1906)	New York

Wisconsin Reciprocity Report

Dr. Robert E. Flynn, secretary, Wisconsin State Board of Medical Examiners, reports 10 physicians licensed by reciprocity with other states at a special meeting held, April 14, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1916)	Illinois
College of Physicians and Surgeons of Chicago	(1886)	Illinois
Loyola University School of Medicine	(1930)	Illinois
Rush Medical College	(1929), (1931)	Illinois
University of Illinois College of Medicine	(1930, 2)	Illinois
University of Minnesota Medical School	(1930)	Minnesota
Medical College of Virginia	(1921)	Virginia
Queen's University Faculty of Medicine	(1926)*	Tennessee

* The license of this applicant is being withheld pending the receipt of a basic science certificate.

Book Notices

Histopathology of Skin Diseases. By Lee McCarthy, M.D., Associate Clinical Professor of Dermatology, Georgetown University Medical School. Cloth. Price, $25. Pp. 513, with 250 illustrations. St. Louis: C. V. Mosby Company, 1931.

To write a textbook on the difficult subject of cutaneous histopathology requires unusual will power and courage in addition to the necessary years of special clinical and laboratory training. Heretofore, dermatologists have relied for their information on the German textbooks of Gans, Kyrle and Friboes, the older voluminous work of Unna or the English handbook of Macleod, which has been out of print for some years. In undertaking this praiseworthy attempt to present an American textbook on the histopathology of skin diseases, the author has largely sublimated his personal views and has endeavored to give in an abbreviated form the accepted interpretation of dermatologists throughout the world. The pathologic material has been gathered from the collections of Arndt, Arning, Christeller, Friboes, Kren and Sabouraud. A few American dermatologists have supplied photomicrographs. The illustrations prepared under the expert direction of Monsieur A. Bessin of Paris are excellent, many in colors, and are clarified by suitable legends. The pathologic classification is thoroughly logical. The text is written in an interesting, readable style and each chapter has appended a well chosen bibliography. The highly technical nature of the content does not lend itself to a detailed analysis but the evident care and thoroughness with which the material has been assembled is a guaranty that the ideas expressed are authoritative and down to date. It is unfortunate that the author did not include a chapter on histologic technic and staining methods as practiced in the more important dermatologic centers of the world. This would have enabled him to present the latest methods of intravital staining elaborated in the Unna clinic, Bloch's technic for demonstrating the dopa-reaction, Osborn's method of showing arsenic crystals in the skin, Warthin's stain for spirochetes, and other modern technical procedures of importance to the laboratory worker. Nevertheless the author is to be congratulated on having completed the first American textbook on cutaneous histopathology, one that may remain a standard for many years to come.

Diagnostics urgents: Abdomen. Par H. Mondor, professeur agrégé à la Faculté de Paris, chirugien des hôpitaux Cloth Price, 145 francs. Pp. 846, with 245 illustrations. Paris Masson & Cie, 1930

This is a new monograph on the diagnosis of acute abdominal conditions in which it is imperative to make a prompt diagnosis and operate at once in order to save the patient from death within a few hours or days. The book does not contain any descriptions of the lesions themselves or any discussion of pathogenesis or treatment but is limited strictly to a consideration of symptoms and diagnosis. No fixed outline form is adhered to in the description of the various conditions. Those which are well known are briefly described, whereas the more unusual and less readily recognized conditions are discussed at greater length, including the latest information available. No set plan is adhered to. Each condition is discussed in a practical clinical manner, so as to be of greatest value to students and practitioners, and the descriptions are direct and to the point. The descriptions are complete, accurate and down to date, including, as they do, the most recent observations reported in the world's literature. The author gives due credit to the various clinicians whose observations are referred to but mentions their names only and has not included any bibliographic references anywhere in the book. Authorities quoted are numerous and the author is thoroughly acquainted with the literature, both French and foreign, and it would enhance the value of the volume enormously had he added, in each case, the exact reference in the literature, so that the original report could be found easily, if desired. While physical conditions and symptoms are critically described and analyzed at length and these are particularly stressed, roentgenographic and other laboratory observations receive proper emphasis. For example, about two pages is devoted to a consideration of the justification and possible benefits of a barium meal in acute intestinal obstruction. Similarly, the roentgenologic finding of an air bubble beneath the diaphragm is more valuable in the diagnosis of acute perforated gastric ulcer than the old and rarely present obliteration of liver dulness. The author points out that whereas the statistics of forty or fifty years ago showed that nine out of every ten patients with extra-uterine pregnancy died, that the same was true of cases of perforated appendicitis, and that perforated peptic ulcer always spelled death, today in the hands of well qualified surgeons of experience ten out of ten patients with extra-uterine pregnancy, if seen early, survive, nine out of every ten patients with perforated appendicitis survive, and eight out of nine patients with perforating ulcer can be saved. In the case of intussusception, even in a well nourished subject, or of perforated ulcer, in a vigorous individual 30 years of age, recovery cannot be expected if twenty-four hours is allowed to elapse before operative intervention is decided on. If the patient is seen before the twentieth hour, the surgeon can save eight or nine out of ten, whereas after the twentieth hour, particularly in these two conditions, the mortality will remain as high as it was forty years ago. While it is not possible to follow these acute cases for days, they can with propriety and advantage often be followed for some hours. The work is divided into five sections. The first deals with acute peritonitis, including perforative peritonitis from the various organs. The second includes all types of intestinal obstruction. The third covers intraperitoneal hemorrhage. The fourth includes acute gastro-duodenal dilatation, acute hemorrhagic pancreatitis, infarction of the small bowel, torsions of the various viscera, and volvulus. The fifth and concluding part deals with traumatic lesions of the abdomen, including contusions, gunshot wounds and stab wounds. The book contains a fund of valuable information, carefully evaluated and presented in a direct and forceful manner, and made easily available because it is well indexed. The alphabetical list of authors quoted alone fills eleven pages and gives a good idea of the care with which the current literature has been consulted. The work is forceful and modern and can be strongly recommended.

The Common Sense of Drinking. By Richard R. Peabody. Cloth. Price, $2. Pp. 191. Boston: Little, Brown & Company, 1931.

This is not, as its title at first might suggest, a defense of the beverage use of alcohol. The author states that while the book is aimed primarily at the inebriate, it should be of interest to all who drink, especially those who stand on the line between moderation and excess. Physicians will find in it helpful suggestions not only for the treatment of inebriates but for the guidance of those who are making their first experiments on the effects of alcohol on themselves. The author is not a physician but a student of psychology, whose theories of the genesis and treatment of inebriety are drawn from large experience. In his opinion the explanation of excessive drinking is to be found in an abnormal psychology and depends on character traits deeply rooted in personality rather than on exposure to drink. Certain individuals who are normal in other respects react abnormally to alcohol: these must eliminate alcohol from their lives or suffer serious consequences. "Once a drunkard," the author says, "always a drunkard—or a teetotaler." A minor rôle is assigned to heredity as a cause of inebriety. The author considers environment a more important factor, especially the environment in childhood, and states that the majority of inebriates are recruited from only children and youngest sons: "the drunkard is not only a child but a spoiled child." His desire for drink is an expression of the desire to escape from the realities of life. In surrendering to it he is following an *ignis fatuus*, in that he is seeking the impossible, "a narcotic escape from realty." The author believes the therapeutic problem to be one of mental and emotional reintegration. He makes it clear that he has no magic wand to wave over the patient's head, removing his desire for drink: the patient himself must do the actual work under guidance. The author does not concern himself with the task of sobering patients up, with the acuter manifestations of alcoholism, such as delirium tremens, or with the treatment of the physical ravages which inevitably follow excessive drinking: these are for the physician. The system of treatment recommended stands out in sharp contrast to the usual medical "cures" in that its field is specifically defined, and because it offers greater prospects of permanent relief from inebriety.

Chirurgische Diagnostik im Tabellenform für Studierende und Aerzte. Von Dr. med. A. J. Cemach. Fifth edition. Cloth. Price, 20.50 marks. With 105 tables and 131 plates. Munich: J. F. Lehmanns Verlag, 1931.

The first edition of Cemach's work on surgical diagnosis appeared in 1914 and was essentially the same as this edition in the plan, scope, and manner of presentation of material. The work consists essentially of tables of differential diagnosis, between which are interspersed reproductions of photographs of actual cases, roentgenograms, drawings and diagrams, which constitute an atlas of surgical diagnosis and illustrate the differential points listed in the tables. There has been practically no increase in size of the volume since the first edition, though in the present edition a considerable number of new illustrations have been added, a few of which are colored drawings. The tables have been revised and brought down to date. A few surgical diseases are not included, because they do not fit in with the differential diagnostic tables, but this is of no great importance as they comprise only the rarer conditions. The work is not intended to take the place of a textbook of surgery, nor is it believed that students will use it as a quiz compend, for it is not well adapted for such use. It is published as an aid to students and practitioners in systematizing and grouping their knowledge, though chiefly for the general practitioner. It can be used to the best advantage by those with a good theoretical and clinical background. Apparently there is a real field for such a book, though it is of little value to any surgeon of experience.

Common Pests: How to Control Some of the Pests That Affect Man's Health, Happiness and Welfare. By Rennie W. Doane. Cloth. Price, $4. Pp. 397, with 215 illustrations. Springfield, Ill.: Charles C. Thomas, 1931.

The author intended this work "as a manual or ready reference book for the farmer, the stockman, the gardener, the householder and all others who may at times be more or less troubled with pests." The book includes mainly pests of the United States, wherein nothing is omitted except the human pest. Because of the wide range of subjects covered—from chiggers to wolves—only the most essential facts in regard to each topic are discussed. Section one, composed of ninety pages, is devoted to pests of man and domestic animals. Among them are mites, ticks, mosquitoes, flies, bedbugs, lice, fleas and parasitic worms, of which not only something of the life history is given but also the diseases which they disseminate and simple methods of protection against them. Section two, of nearly 300 pages, is mainly of economic interest, dealing with pests of fruit trees, berries, grapes, vegetables, field crops and flower beds. Two chapters are devoted to certain mammals and birds which make nuisances of themselves. The book may be safely recommended by the physician to his patients who may wish to inform themselves on pests of the home or of the outdoors. The language is simple, the illustrations are profuse and the index is adequate. The make-up is in keeping with the high standard of Thomas books.

Les premiers jours du nouveau-né. Par Marcel Metzger, professeur agrégé à la Faculté de médecine de Paris, et André Héraux, assistant de puériculture à l'Hôpital Bretonneau. Paper. Price, 40 francs. Pp. 444. Paris: Gauthier-Villars & Cie, 1931.

This volume is one of a series of monographs on pediatric subjects. Marcel Metzger and André Héraux present a clinical review of the physiology and hygiene of the new-born infant, the methods of feeding, dressing and bathing. There is a brief discussion of the initial loss of weight, idiopathic icterus and genital changes in the normal new-born infant. Under artificial feeding methods, the use of evaporated and condensed milks is recommended in various simple dilutions, based apparently more on empiric methods than on the caloric and metabolic requirements of the infant. There is a simple clinical description of the various pathologic manifestations in the new-born, including such subjects as vomiting, hyperthermia, cyanosis, edema, infections, obstetric traumas, malformations, syphilis and tuberculosis. In discussing infections in the new-born, the authors comment on the two chief characteristics: the weak defense reaction against the majority of pathogenic micro-organisms and the multiple pathways for entrance of infection. The general clinical manifestations of syphilis in the new-born are outlined. Among those discussed are pemphigus, osteochondritis, splenic enlargement, syphilitic coryza, icterus and syphilitic septicemia. The latter type, whose incidence is given as 1 in 100 cases, is characterized by the widespread infection with spirochetes in every tissue of the body, with a rapid evolution of the disease resulting in death. In the treatment, ordinary neoarsphenamine, iodides and mercury compounds are recommended. No mention is made of the modern oral therapy of congenital syphilis by acetarsone. The monograph is concluded by a series of forty brief clinical records and weight charts, which illustrate most of the conditions described in the text. The treatment of the subject matter is brief and sketchy, and the material is presented in outline form.

Studies on the Diagnosis and Nature of Cancer. By Various Authors. Cloth. Price, $4. Pp. 240, with illustrations. New York: William Wood & Company, 1930.

This small volume is a collection of articles reprinted from the *Cancer Review*, a journal published by the British Empire Cancer Campaign. It contains five articles on the diagnosis of cancer of the bladder, colon, lung, stomach and throat. These are all by men of ability and, while not exhaustive, are valuable reviews of the subject. W. Sampson Handley has a short essay on the operative treatment of cancer of the breast, which contains nothing new. The remainder of the articles concern the metabolism of tumors; metabolism of the trophoblast; a paper on heredity in relation to cancer; an admirably sound paper by Major Greenwood on recent statistical study of the cancer problem, together with papers on tumors of the thyroid and on bone sarcoma, both of which are satisfactory surveys. The final essay, on immunity to transplantable tumors, is an excellent paper with a complete bibliography. It is from the pen of William H. Woglom, whose name is a guarantee of thoroughness and accuracy. Any one who is interested in cancer will find that this book will bring his knowledge well down to date without the necessity of laboring through obscurely written and massive monographs.

Kommunalärztliche Abhandlungen. Herausgegeben von Dr. B Harms, Stadtarzt, Berlin, und Dr. Fr. Wendenburg, Beigeordneter, Gelsenkirchen. 1: Zur Praxis der Schulgesundheitspflege. Von Dr. Wilfried Zeller, Stadtoberschularzt am Gesundheitsamt, Berlin-Tiergarten. Paper Price, 8.50 marks. Pp. 88. Leipzig: Leopold Voss, 1931.

In a modest monograph, the author presents in exhaustive and detailed form the technic and mode of procedure for the practice of school hygiene in a large metropolitan area. The author correctly points out that there is much loose organization and haphazard management in this rather new field of child hygiene and welfare. He attempts in this book to project a plan of organization which would fit equally well the problem in the large metropolitan area and in the small community. The management of the large and the small group are well discussed. The activities in which the school physician should take part and which should be his concern are clearly defined in all their possibilities and their limitations. The extent to which the school physician can further disease preventive measures is indicated and also the extent to which he can suggest or introduce the delicate problem of therapeutic procedure. The author points out the considerable rôle the school physician can assume in the combat against infectious diseases and particularly in successful propaganda for protective immunization against such disorders. The problem of tuberculosis in the school child is well discussed from the same point of view. The value of the statistical material for worth-while scientific data in the fields of anthropometry, biometry, epidemiology and any number of clinical problems is obvious but is conditioned, as the author well points out, on exact functioning of the kind of work program he outlines. The rôle of the school and official school personnel and their functioning in a well ordered program of school hygiene is defined and the importance of complete cooperation between the physician and such agencies emphasized. Numerous valuable suggestions for future expansion of school hygiene work and its possible advantages for the community are offered. The author stresses the advantage and desirability of simplified record forms, and a valuable feature of the book is a complete set of every conceivably useful form of record and questionnaire. The little book contains a lot of valuable information for the specialist in this field.

Medicolegal

Conclusiveness of Medical Evidence

(Shaw v. American Ins. Union (Mo.), 33 S. W. (2d) 1052)

The plaintiff, as the beneficiary under an insurance policy on his wife's life, sued the insurer. The insurer by way of defense contended, among other things, that the insured, in her application for the policy, misrepresented the condition of her health, in that she stated that she had not had rheumatism, had not consulted a physician within five years and had not been treated for uterine disorders. To disprove the statements made in the application, the insurer introduced not only an abundance of oral evidence but also records of the Washington University Clinic and of the City Hospital. In rebuttal, the plaintiff offered oral evidence to show that his wife, the insured, appeared to be a healthy, normal person, complained of no illness, and had consulted no physicians until immediately before her admission to the hospital. The trial court gave judgment for the plaintiff. The insurer appealed to the St. Louis court of appeals. The insurer claimed that the trial court erred in refusing to direct a verdict in its favor on the basis of the evidence adduced. It contended that the evidence offered by it consisted, in part at least, of documentary evidence showing—conclusively, it contended—that the insured had made the misrepresentations alleged. The insurer admitted that the truth of such evidence was called into question by the plaintiff's oral evidence, but, the insurer argued, lay evidence in regard to health cannot serve to contradict, rebut or modify medical evidence.

The records on which the insurer relied, said the court of appeals, were admissible as records required by law to be kept, except to the extent that they were rendered inadmissible by an objection going to the question of improper identification or personal privilege. Even conceding, however, that the records showed what they purported to show, they were not conclusive as to the insured's alleged misrepresentations. Oral evidence, it may be granted, is not as reliable as written or documentary evidence, but this goes only to the weight of the evidence, not to its conclusiveness. For a writing to be conclusive as to the facts stated in it, it must be an instrument or record having legal efficacy, to which the person to be bound is in some way a part or the truth of which he vouches for or is estopped to deny. In this case the records offered in evidence did not come within this description. They were purely ex parte documents, largely hearsay, and vague and indefinite in many particulars. In certain instances they were shown not to have been made by licensed physicians, but by students who may or may not have been licensed to practice. Proper opportunity was not open to the plaintiff to examine the persons who actually made the records. Every material recital in such records was disputed in some degree by the plaintiff's oral evidence. Under such circumstances it is within the province of the jury to give the medical evidence such credit as it sees fit. The testimony of lay witnesses as to the health of the insured is not devoid of value as evidence, nor is it without probative force. If it contradicts the medical evidence and is believed by the jury, it is of sufficient weight and substance to support a verdict. Under such circumstances the request of the insurer for a directed verdict was properly refused.

The judgment of the trial court in favor of the beneficiary under the policy was affirmed.

Accident Insurance and Death Due to Aneurysm

(Kirkwood v. London & Lancashire Indemnity Co. of America (La.), 131 So. 703)

The defendant insurance company issued to the insured an accident insurance policy protecting "against loss caused by bodily injuries effected directly and independently of all other causes through accidental means." The plaintiff was the beneficiary named in the policy. While running to catch a street car on the morning of May 24 or 25, 1923, the insured fell to the pavement. He arose without assistance and after leaning for a few minutes against a post proceeded to his work. He worked until June 8, 1923. Thereafter he was confined more or less to his bed, until his death two weeks later. The plaintiff sued the insurance company for the amount named in the policy. The trial court gave her judgment. The defendant appealed to the court of appeal of Louisiana, Orleans, where the judgment of the trial court was reversed.

The medical testimony was in accord that the immediate cause of death was an aneurysm of the thoracic aorta. The defendant company contended that there was no proof of an *accidental* fall, but that in all probability, since an aneurysm causes shortness of breath and dizziness, the fall was caused by the aneurysm, not by an accident. The expert testimony was in conflict as to whether trauma can cause an aneurysm of the thoracic aorta. Three witnesses testified that such an aneurysm is never caused by trauma but is always the result of disease. Another witness questioned whether in this case the aneurysm could have been caused by the fall, but he admitted that it could have been aggravated by such a mishap. The attending physician testified that aneurysm might be caused by trauma, but when he testified that he had questioned the insured at some length as to whether or not he had previously suffered from any systemic infection he indicated very clearly, said the court, that he suspected that the aneurysm might have resulted from disease or infection. The appellate court was convinced that death resulted from the aneurysm and that the aneurysm existed prior to the fall. But, contended the plaintiff, if the fall aggravated the aneurysm and caused death sooner than it would have occurred otherwise, recovery under the policy should be allowed. By its very terms, said the court, the policy is limited to losses caused by accident, directly and independently of all other causes. Except for the aneurysm, the fall would have had no fatal result and probably no even serious result. The accident, therefore, in the opinion of the court, was not the direct and independent cause of the death.

Chiropractic: Treatment Limited to Manipulation.—The appellant, Heintze, was licensed to practice chiropractic in New Jersey under chapter 4, Laws of 1920, which apparently authorized chiropractors to treat human ailments by manipulation only. Heintze, however, used a vibrator, an electric light and the galvanic current. His assistant, in his presence, gave directions for a vegetarian diet and the use of flaxseed tea. That such practice does not constitute the practice of chiropractic, said the Supreme Court of New Jersey, but does constitute the practice of medicine and surgery, seems entirely plain. The medical practice act of New Jersey is not unconstitutional because it provides for a trial without a jury of persons charged with practicing medicine and surgery without licenses. The judgment of the trial court, convicting Heintze of practicing medicine and surgery without a license, was affirmed.—*Heintze v. New Jersey State Board of Medical Examiners (N. J.), 153 Atl. 253.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, New Orleans, November 18-20. Dr. Benjamin Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of American Medical Colleges, New Orleans, November 30-December 2. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central Society for Clinical Research, Chicago, November 20. Dr. Lawrence D. Thompson, 903 University Club Building, St. Louis, Secretary.

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Medical Association, New Orleans, November 18-20. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

15: 1919-2433 (July) 1931. Supplement

Nature and Etiology of Cancer. H. G. Wells, Chicago.—p. 1919.

Studies on Histogenesis of So-Called Basal-Cell Carcinoma. S. R. Haythorn, Pittsburgh.—p. 1969.

Multiple Primary Carcinomas. F. R. Hanlon, Rochester, Minn.—p. 2001.

Fundamental Pathology of Infectious Myxomatosis. F. W. Stewart, New York.—p. 2013.

Leukoplakia of Esophagus. G. S. Sharp, New York.—p. 2029.

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Two Additional Cases of Acute Puerperal Inversion of Uterus Treated by Abdominal Replacement. F. C. Irving and F. S. Kellogg, Boston. —p. 440.

Congenital Hernia of Umbilical Cord with Eventration and Absence of a Sac. J. F. Krumm, Chicago.—p. 442.

Vaginal Speculum for Cauterization of Cervix. R. Lifvendahl, Chicago. —p. 444.

Acacia in Treatment of Eclampsia.—Dieckmann calls attention to the fact that the principal change in the blood in eclampsia is a concentration, which may be absolute or relative. Relief of this condition is usually accompanied by clinical improvement. Hypertonic solution of dextrose injected intravenously has given the best results in relieving this condition. Acacia solution has cured patients who did not respond satisfactorily to the usual methods of treatment. The probable explanation is that an injection of acacia solution increases the blood volume, lowers the viscosity, and thereby improves the circulation through tissues and organs. The author suggests using from 500 to 1,000 cc. of a 6 per cent solution of acacia. Much larger amounts have been given in shock, but the decrease in serum proteins in eclampsia is much more marked than would occur in shock and one cannot tell how low they can be artificially forced with safety. Normally as the proteins decrease, fibrin tends to increase, but following acacia this *apparently* is not true. Therefore, it is possible that the fibrin could be decreased to such a degree that either the blood would not clot or, if it did, the clot would not be a firm one.

Treatment of Trichomonas Vaginalis Infections.—Dextrose broth with human serum was unsuccessfully used by Cornell and his associates as a medium for growing Trichomonas vaginalis. The Lynch medium, plain or modified by hydrocele or cyst fluid, was very good. The organism will grow on artificial mediums as well in winter as in summer. The disease is seen in patients of all ages. In a series of 581 gravidas, 10.15 per cent of the women harbored the organism. The infection is perhaps dependent on the hygienic life of the individual. Trichomonas vaginalis does not produce symptoms in all cases. Only twelve patients out of thirty-eight positive cases in the series complained of symptoms. The diagnosis of Trichomonas vaginalis infection cannot be made from the character of the discharge alone. Puerperal morbidity is not increased by the presence of Trichomonas vaginalis. The cervical erosions mentioned by Kleegman have not been noted. The modified Kleegman treatment has given the best results. The authors believe that a cure should not be pronounced until at least four menstrual periods have elapsed without treatment of any *description.*

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*Symptomatic and Asymptomatic Ringworm of Feet: Study of One Thousand Seventy-Three Consecutive Cases in Dispensary, Covering Period of One Year. A. Strickler and R. Friedman, Philadelphia.—p. 430.
*Treatment of Psoriasis: Continued Observations on Use of Crude Coal *Tar and Ultraviolet Light. W. H. Goeckerman, Rochester, Minn.* —p. 446.

Ringworm of Feet.—According to Strickler and Friedman, ringworm of the feet occurs epidemiologically in two varieties: symptomatic and asymptomatic. A certain portion of asymptomatic cases are apparently clinically negative and yet are microscopically positive for fungus. Asymptomatic cases are potentially symptomatic and constitute potent factors in the dissemination of the disease. Symptomatic ringworm of the feet today shows almost, if not quite, as high a percentage of incidence in patients who visit dispensaries as it does in private patients. It occurs in the lower social and economic strata of society with virtually the same degree of frequency as in the higher. Asymptomatic ringworm of the feet, from both the clinical and the microscopic point of view, shows an incidence among patients who frequent dispensaries so high as virtually to equal that for private patients. Ringworm of the feet today ranks as one of the most common if not actually the most common of all diseases of the skin. The intertriginous and hyperkeratotic clinical types occur in the asymptomatic cases with approximately the same degree of frequency that they do in the symptomatic variety of the disease. The vesiculobullous type of epidermophytosis of the feet is rarely if ever found in asymptomatic cases (it was not revealed in this study). If and when it does occur it evokes symptoms of such intensity as to force the patient to seek relief. Thus it may be concluded that the vesiculobullous type occurs only in the symptomatic variety of ringworm of the feet.

Psoriasis.—Goeckerman states that the use of tar and ultraviolet rays in the treatment for psoriasis is the outgrowth of a persistent effort not to "cure" but more effectually to control individual attacks. There is no evidence that this treatment will in any way fundamentally modify the course of the disease. Intervals of freedom from eruption are probably not determined by it. Psoriasis associated with arthritis responds symptomatically as well as psoriasis without arthritis. For some unknown reason the arthritis is materially benefited in about half the cases by treating the lesions of the skin. A small percentage of cases with rather distinctive clinical manifestations do not respond well to the treatment. Its beneficial effect in exfoliative dermatitis secondary to psoriasis is unique. It is not recommended as a measure to be applied as a routine for a few patches of psoriasis, as other efficacious methods are more simple, but it can often be used without materially interfering with the patient's work. The scalp and nails do not lend themselves to this method of treatment. It is a decidedly valuable method for clearing up temporarily extensive and resistant eruptions on the glabrous skin and practically always succeeds when various forms of treatment by roentgen rays, chrysarobin or other substances and methods have failed or are contraindicated. The principles of the treatment must be applied and the simple technic mastered, or success cannot be expected.

Archives of Neurology and Psychiatry, Chicago

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Regenerative Possibilities of Central Nervous System. R W Gerard and R. R. Grinker, Chicago.—p. 469.
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*Infections of Middle Ear: Acute Systemic Infections from the Ear. I. Friesner, New York.—p. 257.
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*Why Ligate the Jugular Vein in Cases of Lateral Sinus Thrombosis? O. M. Rott, Spokane, Wash.—p. 272.
Method of Measurement of Tinnitus Aurium. E. M Josephson, New York.—p. 282.
Lipoma of Larynx. O. J. Dixon and F. C. Helwig, Kansas City, Mo.—p. 284.
*Blood Picture in Otitic Infections. H. Rosenwasser and N. Rosenthal, New York.—p. 291.
Further Proof of Regeneration of Mucous Membrane in Human Antrum. G. McGregor, Toronto, Canada.—p. 309.
Sinusitis in Series of Alcoholic Hallucinoses. W. M. Dick and C. N. Colbert, New York.—p. 327.

Middle Ear Infections.—According to Friesner, the symptoms in acute systemic infections from the middle ear do not differ essentially from those of general invasions of other origins. It is true there are sometimes local manifestations, such as dilatation of the veins of the scalp and edema due to the extension of the phlebitis and thrombosis to the superficial veins through the emissary. Of importance, too, as a local sign is the enlargement of the lymph node at the angle of the jaw. Involvement of a lymph node in this situation through an adjacent phlebitis differs considerably from the ordinary adenitis secondary to an acute infection of the upper respiratory tract. In the former the node is firmer and, as a rule, much more tender. Occasionally there is pain or a feeling of fulness in the homolateral side of the head or pain in the eye. Indeed, the entire clinical picture may at the beginning closely resemble that of osteitis of the petrous pyramid with involvement of the fifth and sixth nerves. Occasionally the early symptoms of a sinus thrombosis resemble those of an abscess of the brain; there may even be physical signs suggestive of beginning involvement of the pyramidal tract. Fever, chills and sweats are common, although the chills occur in only half of the cases and infrequently in children. The fever is often at first sustained at a high level and only after several days do the characteristic drops in temperature and subsequent rises occur. Frequently the character of the temperature curve more than the height to which the fever rises suggests a general invasion This is particularly true in aged and debilitated persons. The pulse is usually rapid and corresponds, at least in the beginning, with the temperature. As the disease progresses the pulse rate increases. An excessively rapid pulse rate is of unfavorable prognostic import. Enlargement of the spleen is common, and not infrequently both the spleen and the liver are palpable. The characteristic mental condition is euphoria, but the disease may begin with delirium or, having persisted for some time, may be associated with a psychosis or a wildly delirious state resembling the mental symptoms of belladonna poisoning. A rapidly progressive anemia follows the presence of hemolyzing organisms in the blood stream. As a rule there is a leukocytosis of moderate grade, not so marked as is usually found in erysipelas, pneumonia or meningitis. There may be a leukopenia. Metastatic infections secondary to otitic bacteremias may occur anywhere in the body. Treatment is solely surgical. Broadly it consists of an attempt to destroy the continuity of, and obliterate, the infected vessel. In this connection it must not be forgotten that a spontaneous cure of a phlebitis of the lateral sinus can, and not infrequently does, occur.

Lateral Sinus Thrombosis.—Rott states that in the matter of ligation of the jugular vein one is apt to attach to it an undue significance merely because of its time honored position in the various procedures advocated for the control of infection of the lateral sinuses. However, simply because a procedure has been carried on for years is no reason why subsequent data may not cause it to be discarded. Unceasing change is a universal law, and he thinks that the time will come when the procedure of ligation of the jugular vein will not be so universally practiced as it is today, just as today it is not practiced so universally as it was twenty years ago. The change will come slowly, because just now, especially when septic symptoms continue after operation on the sinus, one is afraid not to ligate. After ligation one has a feeling of security in knowing that all that has been advocated has been done, even though death supervenes, whereas, if ligation is not performed, one has to face the criticisms of colleagues who might think differently about the method of procedure adopted. However, if those who do not believe it best to ligate have the courage of their convictions and operate on the sinus early, bolstering up the resistance of the patient by all the means at their disposal, including frequent transfusions of blood, and if they fight just a little harder to justify their belief, the mortality rate will not be higher when ligation is not performed than when it is. The only indication to be met in the treatment for lateral sinus infection is the prompt removal of the infected area, whether that area is in the mastoid cells, the sinus plate, the wall of the sinus or inside the lumen of the sinus. Ligation of the jugular vein does not prevent absorption of toxins and bacteria into the general circulation and hence is a superfluous procedure. Ligation of the jugular vein should be reserved for definite infection in the vein, and then should be accompanied by resection.

Otitic Infections.—Rosenwasser and Rosenthal believe that the number of white blood cells and the ordinary differential count do not furnish sufficient evidence of the severity of an otitic infection. The simplified Schilling hemogram is an important diagnostic aid in otitic infections; the study of the young and of the staff cells during the course of otitic infections furnishes important evidence of the intensity of the existing infection. Observations of the cytoplasmic changes of the polymorphonuclear cells (toxic granules, vacuolization) are extremely important, from the prognostic standpoint. The relation between the polymorphonuclear cells showing toxic granules to the normal polymorphonuclear cells is the degenerative index. A steady rise of the degenerative index to about 80 per cent is indicative of an extremely grave prognosis. A rapid fall of this index to normal is of good prognostic import. The degenerative index runs parallel with the pathologic changes or the extent of the suppurative focus The hemoglobin and red cells are rarely disturbed in the ordinary otitic infections, such as external otitis, acute otitis media and uncomplicated mastoiditis; in other words, only in infections associated with bacteremia, namely, sinus thrombosis, meningitis, in which one notes rapidly falling hemoglobin and a corresponding fall in the number of red blood cells. It is the authors' opinion that careful study of the blood, with especial emphasis in regard to the degenerative index, will yield more accurate information than will merely a consideration of the leukocyte count and a modified Schilling hemogram. Such types of blood studies seem to be particularly valuable as a diagnostic and prognostic aid in otitic complications.

decreased to such a degree that either the blood would not clot or, if it did, the clot would not be a firm one.

Treatment of Trichomonas Vaginalis Infections.—Dextrose broth with human serum was unsuccessfully used by Cornell and his associates as a medium for growing Trichomonas vaginalis. The Lynch medium, plain or modified by hydrocele or cyst fluid, was very good. The organism will grow on artificial mediums as well in winter as in summer. The disease is seen in patients of all ages. In a series of 581 gravidas, 10.15 per cent of the women harbored the organism. The infection is perhaps dependent on the hygienic life of the individual. Trichomonas vaginalis does not produce symptoms in all cases. Only twelve patients out of thirty-eight positive cases in the series complained of symptoms. The diagnosis of Trichomonas vaginalis infection cannot be made from the character of the discharge alone. Puerperal morbidity is not increased by the presence of Trichomonas vaginalis. The cervical erosions mentioned by Kleegman have not been noted. The modified Kleegman treatment has given the best results. The authors believe that a cure should not be pronounced until at least four menstrual periods have elapsed without treatment of any description.

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Ollier's Disease, Unilateral Chondrodysplasia: Case. R. S. Bromer and R. L. John, Philadelphia.—p. 428.
Roentgen-Ray Protection. L. S. Taylor.—p. 436.
Studies on Temporomandibular Joint. W. Altschul, Prague, Czechoslovakia.—p. 452.
Is Irritation a Cause of Cancer? A. W. Erskine, Cedar Rapids, Iowa. —p. 456.
Further Observations on Treatment of Superficial Malignancy. G. W. Grier, Pittsburgh.—p. 461.

American Journal of Tropical Medicine, Baltimore

11: 311-363 (Sept.) 1931

Infection of Monkeys with Donovan Organisms by Injections of Tissue from Human Lesions of Granuloma Inguinale. W. A. DeMonbreun and E. W. Goodpasture, Nashville, Tenn.—p. 311.
A Dengue Vaccine Prepared from Macacus Philippinensis. J. H. St. John and R. L. Holt, Washington, D. C.—p. 325.
Some Characteristics of Yellow Fever Virus. J. H. Bauer, Lagos Nigeria, West Africa.—p. 337.
Method for Feeding Blood Meals to Mosquitoes—Male and Female. P. F. Russell Manila.—p. 355.
Dental Instruments for Mosquito Dissection. P. F. Russell, Manila. —p. 359.

Archives of Dermatology & Syphilology

24: 353-536 (Sept.) 1931

Sebaceous Glands: Their Histopathology and Rôle in Diseases of Skin S. C. Way, San Francisco.—p. 353.
Subungual Exostoses. L. W. Shaffer, Detroit.—p. 371.
Schamberg's Disease Associated with Hemochromatosis. S. W. Becker, Chicago —p. 380.
Cutaneous Lymphoblastoma: Two Unusual Cases. W. H. Goeckerman and H. Montgomery, Rochester, Minn.—p. 383.
Paget's Disease of Glans Penis with Central Carcinomatous Degeneration. G. J. Busman, Pittsburgh, and A. R. Woodburne, Grand Rapids, Mich —p. 396.
Compensable Disability in Occupational Dermatoses. H. E. Alderson, San Francisco.—p. 401.
Prognostic Import of Negative Spinal Fluid in Early and in Latent Syphilis. H. H. Hopkins, Baltimore.—p. 404.
Treatment of Superficial Fungus Infections with Long Wavelength Roentgen Rays (Grenz Rays). M. Dorne and C. White, Chicago. —p. 409.
Acute Dermatitis Due to Opium Preparations. N. E. Heller, Newark, N. J —p. 417.
Cholesterol Content of Blood Serum in Yaws. C. G. Aars and F. O. Nielsen, Paramaribo, Dutch Guiana, South America.—p. 418.
*Symptomatic and Asymptomatic Ringworm of Feet: Study of One Thousand Seventy-Three Consecutive Cases in Dispensary, Covering Period of One Year. A. Strickler and R. Friedman, Philadelphia.—p. 430.
*Treatment of Psoriasis: Continued Observations on Use of Crude Coal Tar and Ultraviolet Light. W. H. Goeckerman, Rochester, Minn. —p. 446.

Ringworm of Feet.—According to Strickler and Friedman, ringworm of the feet occurs epidemiologically in two varieties: symptomatic and asymptomatic. A certain portion of asymptomatic cases are apparently clinically negative and yet are microscopically positive for fungus. Asymptomatic cases are potentially symptomatic and constitute potent factors in the dissemination of the disease. Symptomatic ringworm of the feet today shows almost, if not quite, as high a percentage of incidence in patients who visit dispensaries as it does in private patients. It occurs in the lower social and economic strata of society with virtually the same degree of frequency as in the higher. Asymptomatic ringworm of the feet, from both the clinical and the microscopic point of view, shows an incidence among patients who frequent dispensaries so high as virtually to equal that for private patients. Ringworm of the feet today ranks as one of the most common if not actually the most common of all diseases of the skin. The intertriginous and hyperkeratotic clinical types occur in the asymptomatic cases with approximately the same degree of frequency that they do in the symptomatic variety of the disease. The vesiculobullous type of epidermophytosis of the feet is rarely if ever found in asymptomatic cases (it was not revealed in this study). If and when it does occur it evokes symptoms of such intensity as to force the patient to seek relief. Thus it may be concluded that the vesiculobullous type occurs only in the symptomatic variety of ringworm of the feet.

Psoriasis.—Goeckerman states that the use of tar and ultraviolet rays in the treatment for psoriasis is the outgrowth of a persistent effort not to "cure" but more effectually to control individual attacks. There is no evidence that this treatment will in any way fundamentally modify the course of the disease. Intervals of freedom from eruption are probably not determined by it. Psoriasis associated with arthritis responds symptomatically as well as psoriasis without arthritis. For some unknown reason the arthritis is materially benefited in about half the cases by treating the lesions of the skin. A small percentage of cases with rather distinctive clinical manifestations do not respond well to the treatment. Its beneficial effect in exfoliative dermatitis secondary to psoriasis is unique. It is not recommended as a measure to be applied as a routine for a few patches of psoriasis, as other efficacious methods are more simple, but it can often be used without materially interfering with the patient's work. The scalp and nails do not lend themselves to this method of treatment. It is a decidedly valuable method for clearing up temporarily extensive and resistant eruptions on the glabrous skin and practically always succeeds when various forms of treatment by roentgen rays, chrysarobin or other substances and methods have failed or are contraindicated. The principles of the treatment must be applied and the simple technic mastered, or success cannot be expected.

Archives of Neurology and Psychiatry, Chicago

26: 469-686 (Sept.) 1931

Regenerative Possibilities of Central Nervous System. R. W. Gerard and R. R. Grinker, Chicago.—p. 469.

Injury and Repair Within Sympathetic Nervous System: I. Preganglionic Neurons. Sarah S. Tower and C. P. Richter, Baltimore.—p. 485.

Choroid Plexus as Dialyzing Membrane: I. Observations in Experimental Hydrocephalus. T. I. Hoen, Boston.—p. 496.

Ganglioneuromas of Central Nervous System. B. J. Alpers and F. C. Grant, Philadelphia.—p. 501.

Cerebral Birth Palsies: Contribution to Their Pathology with Report of Hitherto Undescribed Form. L. Freedom, Baltimore.—p. 524.

Cerebral Lesions in Purulent Meningitis. F. Wertham, Baltimore.—p. 549.

Fracture of Skull with Injury of Brain: Diagnosis of Laceration of Orbital Surface of Frontal Lobes. E. S. Gurdjian and N. H. Schlafer, Detroit.—p. 583.

Basophilic Adenoma of Hypophysis with Associated Pluriglandular Syndrome: Case. H. M. Teel, Cleveland.—p. 593.

Archives of Otolaryngology, Chicago

14: 257-412 (Sept.) 1931

*Infections of Middle Ear: Acute Systemic Infections from the Ear. I. Friesner, New York.—p. 257.

Antroscopic Diagnosis of Maxillary Sinusitis. E. Simon, Albany, N. Y.—p. 266.

*Why Ligate the Jugular Vein in Cases of Lateral Sinus Thrombosis? O. M. Rott, Spokane, Wash.—p. 272.

Method of Measurement of Tinnitus Aurium. E. M. Josephson, New York.—p. 282.

Lipoma of Larynx. O. J. Dixon and F. C. Helwig, Kansas City, Mo.—p. 284.

*Blood Picture in Otitic Infections. H. Rosenwasser and N. Rosenthal, New York.—p. 291.

Further Proof of Regeneration of Mucous Membrane in Human Antrum. G. McGregor, Toronto, Canada.—p. 309.

Sinusitis in Series of Alcoholic Hallucinoses. W. M Dick and C. N. Colbert, New York.—p. 327.

Middle Ear Infections.—According to Friesner, the symptoms in acute systemic infections from the middle ear do not differ essentially from those of general invasions of other origins. It is true there are sometimes local manifestations, such as dilatation of the veins of the scalp and edema due to the extension of the phlebitis and thrombosis to the superficial veins through the emissary. Of importance, too, as a local sign is the enlargement of the lymph node at the angle of the jaw. Involvement of a lymph node in this situation through an adjacent phlebitis differs considerably from the ordinary adenitis secondary to an acute infection of the upper respiratory tract. In the former the node is firmer and, as a rule, much more tender. Occasionally there is pain or a feeling of fulness in the homolateral side of the head or pain in the eye. Indeed, the entire clinical picture may at the beginning closely resemble that of osteitis of the petrous pyramid with involvement of the fifth and sixth nerves. Occasionally the early symptoms of a sinus thrombosis resemble those of an abscess of the brain; there may even be physical signs suggestive of beginning involvement of the pyramidal tract. Fever, chills and sweats are common, although the chills occur in only half of the cases and infrequently in children. The fever is often at first sustained at a high level and only after several days do the characteristic drops in temperature and subsequent rises occur. Frequently the character of the temperature curve more than the height to which the fever rises suggests a general invasion. This is particularly true in aged and debilitated persons. The pulse is usually rapid and corresponds, at least in the beginning, with the temperature. As the disease progresses the pulse rate increases. An excessively rapid pulse rate is of unfavorable prognostic import. Enlargement of the spleen is common, and not infrequently both the spleen and the liver are palpable. The characteristic mental condition is euphoria, but the disease may begin with delirium or, having persisted for some time, may be associated with a psychosis or a wildly delirious state resembling the mental symptoms of belladonna poisoning. A rapidly progressive anemia follows the presence of hemolyzing organisms in the blood stream. As a rule there is a leukocytosis of moderate grade, not so marked as is usually found in erysipelas, pneumonia or meningitis. There may be a leukopenia. Metastatic infections secondary to otitic bacteremias may occur anywhere in the body. Treatment is solely surgical. Broadly it consists of an attempt to destroy the continuity of, and obliterate, the infected vessel. In this connection it must not be forgotten that a spontaneous cure of a phlebitis of the lateral sinus can, and not infrequently does, occur.

Lateral Sinus Thrombosis.—Rott states that in the matter of ligation of the jugular vein one is apt to attach to it an undue significance merely because of its time honored position in the various procedures advocated for the control of infection of the lateral sinuses. However, simply because a procedure has been carried on for years is no reason why subsequent data may not cause it to be discarded. Unceasing change is a universal law, and he thinks that the time will come when the procedure of ligation of the jugular vein will not be so universally practiced as it is today, just as today it is not practiced so universally as it was twenty years ago. The change will come slowly, because just now, especially when septic symptoms continue after operation on the sinus, one is afraid not to ligate. After ligation one has a feeling of security in knowing that all that has been advocated has been done, even though death supervenes, whereas, if ligation is not performed, one has to face the criticisms of colleagues who might think differently about the method of procedure adopted. However, if those who do not believe it best to ligate have the courage of their convictions and operate on the sinus early, bolstering up the resistance of the patient by all the means at their disposal, including frequent transfusions of blood, and if they fight just a little harder to justify their belief, the mortality rate will not be higher when ligation is not performed than when it is. The only indication to be met in the treatment for lateral sinus infection is the prompt removal of the infected area, whether that area is in the mastoid cells, the sinus plate, the wall of the sinus or inside the lumen of the sinus. Ligation of the jugular vein does not prevent absorption of toxins and bacteria into the general circulation and hence is a superfluous procedure. Ligation of the jugular vein should be reserved for definite infection in the vein, and then should be accompanied by resection.

Otitic Infections.—Rosenwasser and Rosenthal believe that the number of white blood cells and the ordinary differential count do not furnish sufficient evidence of the severity of an otitic infection. The simplified Schilling hemogram is an important diagnostic aid in otitic infections; the study of the young and of the staff cells during the course of otitic infections furnishes important evidence of the intensity of the existing infection. Observations of the cytoplasmic changes of the polymorphonuclear cells (toxic granules, vacuolization) are extremely important, from the prognostic standpoint. The relation between the polymorphonuclear cells showing toxic granules to the normal polymorphonuclear cells is the degenerative index. A steady rise of the degenerative index to about 80 per cent is indicative of an extremely grave prognosis. A rapid fall of this index to normal is of good prognostic import. The degenerative index runs parallel with the pathologic changes or the extent of the suppurative focus. The hemoglobin and red cells are rarely disturbed in the ordinary otitic infections, such as external otitis, acute otitis media and uncomplicated mastoiditis; in other words, only in infections associated with bacteremia, namely, sinus thrombosis, meningitis, in which one notes rapidly falling hemoglobin and a corresponding fall in the number of red blood cells. It is the authors' opinion that careful study of the blood, with especial emphasis in regard to the degenerative index, will yield more accurate information than will merely a consideration of the leukocyte count and a modified Schilling hemogram. Such types of blood studies seem to be particularly valuable as a diagnostic and prognostic aid in otitic complications.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 517-574 (Sept.) 1931

Temperature Distribution with Different Diathermy Electrodes. A. Hemingway and D. Collins, Minneapolis.—p. 517.
Some Important Phases of Roentgenographic Diagnosis in Chest Diseases. J. J. Singer, St. Louis.—p. 526.
Actinotherapy in Relation to Tuberculosis. G. D. Kettelcamp, Koch, Mo.—p. 527.
Diagnosis and Treatment of Intestinal Tuberculosis. S. H. Watson and R. J. Callander, Tucson, Ariz.—p. 532.
Hydrogymnastics in Infantile Paralysis. K. G. Hansson, New York.—p. 539.
Application of Diathermy in Surgery of Rectum. W. R. Rainey, St. Louis.—p. 542.
Diathermy of Rectum and Pelvic Colon. H. W. Soper, St. Louis.—p. 545.
Traumatic Arthritis. J. A. Key, St. Louis.—p. 550.

Arkansas Medical Society Journal, Little Rock

28: 67-82 (Sept.) 1931

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"Clinical Significance of Dysphonia." H. Dupuy, New Orleans.—p. 72.
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Colorado Medicine, Denver

28: 385-428 (Sept.) 1931

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Periodic Health Examination. T. S. Spears, Denver.—p. 399.
Pubertas Praecox: Case of Proved Etiology. C. Eastlake, Denver.—p. 404.
Management of Obesity. A. Minnig, Denver.—p. 408.

Indiana State Medical Assn. Journal, Fort Wayne

24: 455-533 (Sept.) 1931

Modified Aschheim-Zondek Pregnancy Test: Dependable Laboratory Test for Diagnosis of Pregnancy; Cases. B. W. Rhamy, Fort Wayne.—p. 455.
Conduct of Labor in Cases of Moderate Pelvic Contraction. D. L. Smith, Indianapolis.—p. 458.
Zinc Ionization in Treatment of Rhinitis and Nasal Accessory Sinusitis. C. B. Sputh, Indianapolis.—p. 461.
Occluding Ureteral Stones: Cases. R. L. Smith, Indianapolis.—p. 464.
Pyogenic Infection of Parotid Gland. D. W. Layman, Indianapolis.—p. 465.
Value of Sodium Amytal in Treatment of Tetanus. E. R. Smith and H. Call, Indianapolis.—p. 472.
Surgical Ideas from European Clinics. J. V. Reed, Indianapolis.—p. 474.
Some Referred and Reflex Eye Disturbances. O. T. Allen, Terre Haute.—p. 476.

Journal of Comparative Psychology, Baltimore

12: 137-256 (Aug.) 1931

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On Counting Ability of Monkey (Macacus Cynomolgus). R. Kuroda.—p. 171.
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Visual Form Discrimination in Domestic Cat. W. G. McAllister, Urbana, and H. D. Berman, Minneapolis.—p. 207.
Preliminary Report on Right and Left Handedness in Rat. G. M. Peterson, Chicago.—p. 243.
Sucking Preference in Nursing Young Rats. L. S. Tsai, Chicago.—p. 251.

Journal of Experimental Medicine, New York

54: 453-627 (Oct.) 1931

Cultivation of Vaccine Virus for Jennerian Prophylaxis in Man. T. M. Rivers, New York.—p. 453.
Specificity of Precipitin Reaction in Tobacco Mosaic Disease. Helen Purdy Beale, New York.—p. 463.
Studies on Blood Cytology of Rabbit: VIII. Blood of Normal Rabbits as Index of Their Resistance to Transplantable Neoplasm. A. E. Casey and Louise Pearce, New York.—p. 475.
Effect of Testis Extract and of Normal Serum on Transplantable Epithelial Tumor of Rabbit. F. Duran-Reynals, New York.
Gradient of Vascular Permeability: IV. Permeability of Cutaneous Venules and Its Functional Significance. F. Smith and P. Rous, New York.—p. 499.
Protein Fractions of Scarlatinal Strain of Streptococcus Hemolyticus. M. Heidelberger and F. E. Kendall, New York.—p. 515.
Use of Mice in Tests of Immunity Against Yellow Fever. W. A. Sawyer and W. Lloyd, New York.—p. 533.
Studies on Filtrability of Bacterium Granulosis. P. K. Olitsky, R. E. Knutti and J. R. Tyler, New York.—p. 557.
Transmission of Virus of Mexican Typhus from Rat to Rat by Polyplax Spinulosus. H. Mooser, R. Castaneda, Mexico City, and H. Zinsser, Boston.—p. 567.
Studies on Relationship of Certain Variants of B. Typhosus: I. Agglutination and Agglutinin Absorption. F. B. Grinnell, Boston.—p. 577.
Cutaneous Reactions in Rabbits to Type-Specific Capsular Polysaccharides of Pneumococcus. T. Francis, Jr., and W. S. Tillett, New York.—p. 587.
Serum Sickness in Rabbits: I. Manifestations of Serum Sickness. M. S. Fleisher and L. Jones, St. Louis.—p. 597.
Duration of Demonstrable Antibodies in Serum of Rabbits Immunized with Heat-Killed Type I Pneumococci. E. G. Stillman, New York.—p. 615.
Localization of Pneumococci in Lungs of Partially Immunized Mice Following Inhalation of Pneumococci. E. G. Stillman and A. Branch, New York.—p. 623.

Journal of Immunology, Baltimore

21: 171-253 (Sept.) 1931

Studies on Antigenic Properties of Ultraviruses: VII. Nature of Viricidal Antibody in Antipoliomyelitis Serum. E. W. Schultz, L. P. Gebhardt and L. T. Bullock, San Francisco.—p. 171.
Studies on Antibodies: II. Antipneumococcus Serum. K. G. Falk, Grace McGuire, Eugenia Valentine and Elinor Whitney, New York.—p. 199.
Id.: III. Agglutinin and Precipitin Reactions of Dried Antipneumococcus Preparations After Storage Under Various Conditions. Eugenia Valentine, Grace McGuire, Elinor Whitney and K. G. Falk, New York.—p. 221.
Studies of Properties of Bouillon Filtrate of Gonococcus. L. T. Clark and N. S. Ferry, Detroit, and A. H. Steele, Northville, Mich.—p. 233.
Chemical and Immunologic Studies of Pneumococcus: I. Specific Antigenic Carbohydrate of Type I Pneumococcus. A. Wadsworth and Rachel Brown, Albany, N. Y.—p. 245.

Journal of Industrial Hygiene, Boston

13: 269-292 (Oct.) 1931

Night Industrial Dental Clinic in Montreal. R. V. Ward and F. G. Pedley, Montreal.—p. 269.
Toxicity of Methyl Chloride for Laboratory Animals. J. L. White and P. P. Somers, Chicago.—p. 273.
*Rôle of Punctate Basophilia in Control of Industrial Plumbism. R. E. Lane, London.—p. 276.
Quantitative Measurements of Inhalation, Retention and Exhalation of Dusts and Fumes by Man: II. Concentrations Below 50 Mg. per Cubic Meter. C. E. Brown, Boston.—p. 285.

Punctate Basophilia in Control of Plumbism.—Lane found that punctate basophilia, as demonstrated by Sellers' method of staining, was present in a minor degree in approximately half of 223 normal subjects examined. Punctate basophilia on a more extensive scale is present in practically all workers exposed to a lead hazard. A quantitative estimation of the punctate basophilia is desirable and great stress must be laid on the size of the granules. Large granules have a greater significance than small ones and denote excessive absorption or mobilization of lead. The value of punctate counts in the diagnosis of plumbism is limited. Punctate counts are of extreme value in the prophylaxis of plumbism among lead workers and are essential in the adequate hygienic control of lead processes.

Journal of Nervous and Mental Disease, New York

74: 393-576 (Oct.) 1931

Contribution to Problem of Heredity Among Schizophrenics. M. Bleuler, White Plains.—p. 393.
*Cortical Herniations. C. T. Prout, Rochester, Minn.—p. 468.
Psychiatric Reactions from Dysinsulinism in Diabetic. H. J. Cronin, Cambridge, Mass.—p. 478.
Study of Psychogenic Factors in Thyrotoxicosis. H. E. Kiene and H. H. Dixon, Denver.—p. 483.
Insulin and Nonspecific Therapy—Common Mechanism: "The Nonspecific Syndrome." J. I. Margolis, New York.—p. 494.

Cortical Herniations.—According to Prout, multiple herniations of the brain are caused by increased intracranial pressure, but they are not always present in such a condition. Their presence is dependent not only on the duration of the increased intracranial pressure but also on its severity and the rapidity of its onset. In the author's experience they are most commonly found in the presence of tumor of the brain. Age is not an important factor, except that in advanced age there is a greater tendency to increased blood pressure and to temporary episodes of increased intracranial pressure. They are of importance from the standpoint of roentgen diagnosis because they must be distinguished from malignant tumors which erode the inner plate of the skull. Their situation is not important in localizing lines of pressure. Evidence points to the fact they follow the villi, although they do not necessarily follow them in the presence of other dural weakness.

Medicine, Baltimore

10: 257-371 (Sept.) 1931

*New Conception of Some Morbid Changes Occurring in Diseases of Thyroid Gland Based on Experimental Studies of Normal Gland and Thyroid in Exophthalmic Goiter. W. F. Rienhoff, Jr., Baltimore.—p. 257.
Clinical Implications of Experimental Hematology. C. A. Doan, Columbus, Ohio.—p. 323.

Morbid Changes in Diseases of Thyroid.—Rienhoff believes that in order properly to interpret the structural changes encountered in the thyroid the present functional status of the gland as well as former variations in function must be considered simultaneously. Just as one expects to find the microscopic appearance of hypertrophy and hyperplasia in the thyroid of an individual with hyperthyroidism, so must the microscopic changes associated with involution be regarded as the structural substrate characteristic of a less active functional status of the gland. Involution is a term used to describe the microscopic appearance of the thyroid parenchyma which has been shown to be less active physiologically than the gland in which there is hypertrophy and hyperplasia. Involution may occur not only in a thyroid in which there is a pathologic hypertrophy and hyperplasia but in a gland the site of a physiologic hypertrophy and hyperplasia or even in a normal thyroid. Involution must be regarded as a positive regressive change in the structure of the parenchyma. Regardless of the type of gland in which it has its inception there will occur during involution a still greater deposition of colloid and a further flattening of the epithelium with yet more dilatation of the acini or follicles. Involution is not merely a passive or resting phase but as positive as hypertrophy and hyperplasia. The thyroid in which involution occurs is in a relatively less active functional status than before involution began. Thus the simple colloid goiter which has its beginning in a normal thyroid is one in which the process of involution has spread over approximately the entire gland. The basal metabolic reaction of patients with simple colloid goiter is usually low and below the normal for their age. These patients are also usually overweight and mentally sluggish, thus demonstrating that the thyroid is probably hypo-active. Just as in hypertrophy and hyperplasia, involution may occur in only limited and specific regions of the parenchyma with normal thyroid tissue intervening. These areas of regional involvement may appear as localized tumors or only nodules, with huge dilated follicles filled with heavy staining colloid and lined with epithelial cells so flat that they appear more like endothelial cells. In the past, these formations have been called "colloid adenomas." Not only do these areas of localized involution reduce the function of the remaining normal thyroid tissue by the amount of gland parenchyma consumed in their formation but they reduce it further by the pressure of the nodules of involution on the contiguous parenchyma. In the author's thyroid clinic the basal metabolism tests have always been below normal in patients with large nodular goiters without hyperthyroidism, many showing the clinical signs of hypothyroidism. The release from pressure of the normal thyroid tissue present, by removal of these large nodular goiters, permits the remaining gland to reapproximate its normal function. Within six months following double partial lobectomy in these cases the basal metabolism of the individual comes up to within normal limits.

Military Surgeon, Washington, D. C.

69: 379-482 (Oct.) 1931

Longevity of Army Officers in Relation to Physical Fitness. L. J. Reed and A. G. Love.—p. 379.
The Institute for Ship and Tropical Diseases at Hamburg, Germany. R. B. H. Gradwohl.—p. 386.
The A. R. A. in Russia. W. R. Dear.—p. 392.
Roentgen Diagnosis of Chronic Appendicitis. A. Bowen.—p. 407.
Postpneumonia Empyema. W. H. Michael.—p. 413.
Unusual Cases in Military Surgery: Case Reports of Congenital Hypertrophic Pyloric Stenosis, and Hemophilic Infiltration of Tongue. J. M. Troutt.—p. 419.
Typhus Fever: Case. D. C. Absher.—p. 425.
Traumatic Rupture of Heart: Case. J. W. Smith.—p. 428.
Selection of Flying Cadets: Medical Aspects. R. F. Longacre.—p. 431.

New Jersey Medical Society Journal, Orange

28: 679-730 (Sept.) 1931

Plastic Surgery. J. W. Maliniak, New York.—p. 679.
Some Difficulties of the Asthma Problem. G. H. Lathrope, Newark.—p. 684.
Dust Factor and Bacterial Factor in Asthma. R. Paddock, Newark.—p. 687.
Asthma from Standpoint of Rhinologist. L. A. Peer, Newark.—p. 692.
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Squint in Childhood and Its Effect in Later Life. W. G. Mengel, Camden.—p. 700.
Common Conditions in Industrial Ophthalmology. G. J. Dublin, Camden.—p. 704.
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Foreign Body in Urinary Bladder. R. L. McKiernan, New Brunswick and H. H. Goldstein, Elizabeth.—p. 709.

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31: 1127-1189 (Sept. 15) 1931

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What is Direct Laryngoscopy? J. W. Miller, New York.—p. 1136.
Problems in Diagnosis and Treatment of Trigeminal Neuralgia. C. H. Frazier, Philadelphia.—p. 1137.
Recent Advances in Ophthalmic Surgery. W. W. Weeks, New York.—p. 1141.
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Recent Advances in Diagnosis and Treatment of Chronic Diseases of Nose and Throat. G. L. Tobey, Jr., Boston.—p. 1149.
Relief of Abdominal Pain by Sympathetic Ramisection. L. G. Barton, Jr., Plattsburg.—p. 1155.
Psittacosis. R. H. Riley, Baltimore.—p. 1159.
Report of Stubborn Case of Actinomycosis Cleared up by Electrocoagulation. L. J. Silvers, New York.—p. 1162.
A Relatively Obscure Case of Carcinoma of Breast. J. Burke, Buffalo—p. 1163.

Pennsylvania Medical Journal, Harrisburg

34: 853-948 (Sept.) 1931

Certain Determinants of Rhinopharyngeal Infection and Its Systemic Dissemination: Their Bearing on Preventive Measures. deW. G. Richey, Pittsburgh.—p. 853.
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Public Health Reports, Washington, D. C.

46: 2291-2355 (Sept. 25) 1931

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Inspection of Ships for Determination of Mosquito Infestation. W. F Tanner.—p. 2306.

Radiology, St. Paul

17: 425-660 (Sept.) 1931

Comparative Radiosensitivity of Pharyngeal Tumors. H. E. Martin, New York, and O. H. Pflueger, San Francisco.—p. 425.
Effect of Roentgen Radiation on Solutions of Tyrosine, Phenol and Tryptophan. W. Stentstrom and Anne Lohmann, Minneapolis.—p. 432
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Comparison of Various Sources of Interstitial Radiation. Edith H. Quimgy and F. W. Stewart, New York.—p. 449.
Experiments and Experiences with Various Contrast Mediums in Excretion Urography. A. C. Siefert, Oakland, Calif.—p. 471.
Extension of Roentgen-Ray Researches on Fine Structures of Colloids to Normal and Pathologic Human Tissues. G. L. Clard, C. S. Bucher and O. Lorenz, Urbana, Ill.—p. 482.
So-Called Calcifying Subacromial Bursitis. J. B. Carnett, Philadelphia.—p. 505.
Roentgenologic Diagnosis of Hyperplasias of Gastric Mucosa. F. Windholz, Vienna.—p. 514.
Quantitative Roentgen Diagnosis of Pleural Effusions. A. Bowen, Denver.—p. 520.
Lead-Lined Safe for Storing Large Amounts of Radium. L. F. Curtiss, Washington, D. C.—p. 529.
Effect of Experimental Cholecystitis on Concentrating Function of Gallbladder. L. Darnbacher and J. Sacks, Chicago.—p. 538.
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Clinical Value of Cholecystography by Oral Method. D. S. Beilin and G. D. Carlson, Chicago.—p. 559.

17: 661-904 (Oct.) 1931

Unrecognized Vertebral Fracture vs. Kümmell's Disease (Syndrome). F. W. O'Brien, Boston.—p. 661.
Oral Cholecystography of Today. W. H. Stewart and H. E. Illick, New York.—p. 674.
Irradiation of Tumors, with Especial Reference to Radiosensitive Tumors. M. Kahn, Baltimore.—p. 692.
On Specification of Roentgen-Ray Quality. R. B. Wilsey, Rochester, N. Y.—p. 700.
Measurements of Extremely Hard Roentgen Rays. H. Herrmann and R. Jaeger, Berlin, Germany.—p. 714.
Relation of Diaphragm to Gastric Peristalsis. M Joannides and J. J. Litschgi, Chicago.—p. 723.
Traumatic Luxation of Coccyx. C. S. Oakman, Muncie, Ind.—p. 727.
Measurement of Lenard Rays. L. S. Taylor, Washington, D. C.—p. 736.
Simple Method for Calculating Doses with Multiple Points of Gamma Radiation. M. C. Reinhard and H. L. Goltz, Buffalo.—p. 752.
Radiotherapy with Small Quantities of Radium. P. O. Snoke, Lancaster, Pa.—p. 760.
Radiotherapy in Chronic Myelogenous Leukemia. R. G. Giles, Temple, Texas.—p. 764.
Clinical and Experimental Observations Relative to Etiology of Cancer. M. T. Burrows, Pasadena, Calif.—p. 775.
First Roentgen Evidences. O. Glasser, Cleveland —p. 789.
Ultraviolet Irradiation in Treatment of Fractures M. Ponzio, Turin, Italy.—p. 792.
Radium and Roentgen Ray Treatment of Myopathic and Thrombopenic Menorrhagia. B F. Schreiner, Buffalo.—p. 796.

Rhode Island Medical Journal, Providence

14: 139-150 (Sept.) 1931

Review of Smallpox Vaccination J. Smith, Providence.—p. 139.
Amblyopia Due to Emotional Displacement. H. E. Kiene, Cranston.—p. 141

South Carolina Medical Assn. Journal, Greenville

27: 217-243 (Sept.) 1931

Uterine Hemorrhage J. D Guess, Greenville —p 221
Development of Intravenous Therapy. O B Mayer, Columbia.—p. 226.
Introspection as Result of Medical Examination C. F. Williams, Columbia.—p. 230

Tennessee State Medical Assn. Journal, Nashville

24: 327-364 (Sept.) 1931

Surgery of Pulmonary Tuberculosis. R. Caldwell, Nashville.—p. 327.
Use of Sodium Amytal for Alleviation of Pain During Labor. M. S. Lewis and R. Hamilton, Nashville.—p. 339.
Some Facts and Problems Associated with Biliary Tract Disease. E. G Wood, Knoxville.—p. 345.
Standardization with Roentgen Ray Versus Dogmatism in Diagnosis of Sinus Disease. C. D. Blassingame, Memphis.—p. 352

Texas State Journal of Medicine, Fort Worth

27: 339-416 (Sept.) 1931

Some Recent Ophthalmic Surgical Procedures. C A. Bahn. New Orleans.—p. 344.
Fractures Involving the Orbit and Paranasal Sinuses, with Especial Reference to Diagnosis and Treatment. W. D. Gill, San Antonio.—p. 351.
The Grass Bur as a Laryngeal Foreign Body S N. Key, Austin.—p. 358.
Surgical Treatment of Angina Pectoris A O Singleton, Galveston.—p. 359.
Amebiasis of Colon: Its Radiologic Aspects W. F Henderson, New Orleans.—p. 363.
Some Observations on Spinal Anesthesia. L. W. Pollok, Temple —p. 366.
Gallbladder Disease. H. J. Mixson, Beaumont.—p. 379
Gallbladder Disease with Review of 100 Operative Cases. D. A Mann, Beaumont.—p. 384
Summary of Some Chemical Procedures of Importance in Clinical Pathology. M. Bodansky, Galveston.—p. 390
Occurrence and Identification of Infection of Rocky Mountain Spotted Fever Type in Texas. H. A. Kemp and C. M. Grigsby, Dallas —p. 395.
Vasomotor Rhinitis from Endocrine Standpoint. L. A. Nelson, Dallas.—p. 398.

United States Naval Med. Bulletin, Washington, D. C.

29: 581-788 (Oct.) 1931

Undulant Fever (Brucelliasis) with Especial Reference to 128 Cases in and About Dayton, Ohio. W. M. Simpson.—p 581.
Fractures of Neck of Femur. D. S. O'Connor.—p. 598.
Surgical Goiter. K. E. Lowman.—p. 602.
Wartime Lessons Applied to Peacetime Warfare. W. S. Bainbridge.—p. 608.
Toxic Amblyopia. J. J. White.—p. 614.
Development of Dental Officers for Responsible Positions. W. Rehrauer.—p. 616.
"Rhinoneurosis." C. A. Swanson.—p. 618.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

48: 167-232 (Autumn) 1931

*Review of Seven Hundred Cases of Acute Appendicitis. H. Chitty.—p. 167.
Work of University Center of Cardiac Research. C. F. Coombs.—p. 179.
Sterilization of the Unfit. H. C. Bristowe.—p. 189.
Tetany Following Thyroid Operations. D. Wood.—p. 205.
Case of Congenital Obstruction of Bile Duct. J. A. Birrell and A. W. Adams.—p. 215.

Seven Hundred Cases of Appendicitis.—On the basis of his observations in 700 cases, Chitty believes that if every person with acute appendicitis could be operated on during the first twenty-four hours deaths from this disease could be almost completely abolished. At the present time most deaths are due to delay in diagnosis and treatment. The fault often lies with the patient who, when he has abdominal pain, sends for castor oil instead of for a doctor. The commonest mistakes of the general practitioner are: 1. He knows that most cases subside if left alone, and so he waits till he finds that this particular case is not doing so. In consequence, he may sacrifice the patient's life or cause him many weeks of invalidity. 2. He waits to make a diagnosis until signs of peritonitis have supervened, thus missing the most favorable time for operation. 3. He does not know that pelvic appendicitis is common, does not produce abdominal signs till late, and can be definitely diagnosed only by rectal examination. Of these three the last is nowadays the most frequent and fatal error. Gangrenous pelvic appendicitis accounts for most of the deaths, and it will continue to do so until a rectal examination becomes the invariable rule in every case of possible appendicitis in which physical signs are lacking in the abdomen.

British Medical Journal, London

2: 481-518 (Sept. 12) 1931

*Recognition and Treatment of Birth Injuries in the Newly Born. G. B Fleming.—p. 481.
*Sore Throats of Other Than Tonsillar Origin. B. Russell.—p. 485.
Subarachnoid Block: General Analgesia; "Spinal" Anesthesia; Respiratory Paralysis; Fallacies and Methods. W. H. Jones.—p. 488.
Milk-Borne Streptococcal Infections. E. Wilkinson.—p. 494.
Intussusception Illustrated by Three Unusual Examples. J. Crooks.—p. 496.

Birth Injuries in Infants.—Fleming calls attention to the fact that the infant in its passage through the genital canal probably experiences more severe trauma than at any future stage of his existence. Few adults could survive such an experience. It is small wonder, then, that some infants die forthwith from what is miscalled "asphyxia pallida," really from shock, and that others die in a few days as the result of birth trauma. The majority fortunately survive, but all are injured to a greater or less extent. There is a remarkable contrast between the recuperative powers of infants from sepsis and from injury. To the former they show little, while to the latter they show wonderful, powers of resistance. Injuries to the skin and subcutaneous tissue, in the absence of sepsis, usually heal without leaving either deformity or disability. Fractured bones nearly always unite with great rapidity and without deformity. Injuries to the viscera on the other hand are usually fatal, at least those that are recognized usually end in death, though there must be many minor injuries which pass unnoticed and leave no after-effects. Of all the birth injuries those to the nervous system are most likely to leave permanent disability, though here again a grossly paralyzed limb may, within a few weeks, recover completely, and even intracranial hemorrhage may be absorbed without leaving any disability either mental or physical. Retinal hemorrhages always clear up within ten days or a fortnight. Once the first critical days have passed, if infection is avoided, most infants make a rapid and complete recovery from the trauma of birth. Of the deaths from birth injury, 68 per cent occur in the first three days of life. If the trauma is insufficient to kill rapidly, the majority recover completely. The prevention of birth injuries lies with the obstetrician, the treatment with the pediatrician. Obstetric maneuvers employed on behalf of the mother are frequently the cause of injury to the child. The induction of premature labor may be essential for the well being of the mother, while for the infant a cesarean section at term would be a safer procedure. The use of anesthetics and opiates may be necessary for the mother, but it cannot be advantageous for the infant to arrive in its new surroundings in a drugged state. Antenatal treatment must prove of advantage to both mother and child. Treatment can sometimes be instituted so that pregnancy may be allowed to go to term and malpresentation can be rectified before labor commences. By antenatal care there should be reduction in both the maternal and the neonatal death rates. The points in the recognition and treatment of birth injuries that the author emphasizes are: (1) the prevention of sepsis in even the smallest superficial abrasion, (2) the recognition and treatment of fractures, (3) the recognition and early treatment of injuries to nerves, and (4) the careful nursing of the infant with intracranial damage.

Sore Throats Other Than Tonsillar.—Russell emphasizes the importance of the nose in the production of faucial and pharyngeal complaints. The way in which tonsils affect the nose is well recognized, but the converse is also true. It is unfortunately impossible for a laryngologist to follow up all his cases of tonsillectomy and see whether the operation has always succeeded in stopping sore throats, but general practitioners have sometimes the thankless task of so doing, and they have sometimes been disappointed in the results of tonsillectomy done for this purpose. One reason why this aspect of sore throats has to be examined afresh is a change that has arisen with regard to the skill displayed in tonsillectomy. Before the war, the explanation of the failure to cure symptoms was often that portions of the tonsils were still present after operation, especially during the period of enthusiasm that followed the demonstration by Sluder and by Whillis about 1910 that one could completely enucleate tonsils with the guillotine; and for ten or fifteen years the prevalence of tonsillar remnants and of scarred-up palates sufficiently explained the many failures to cure throats by tonsil operations. But although skill acquired by practice has led to a noticeable decrease in the number of incomplete operations, yet one not infrequently sees cases, in both children and adults, of sore throats persisting in spite of careful removal of tonsils and adenoids, especially in certain years. This was the case in 1919 and 1929 and also this year. The author's paper, ostensibly on throats, is really a covert attack on the antrum. He freely admits this, except that he would include hidden ethmoidal infection as being at least as frequent. He does not urge operation on the ethmoids in this connection but submits that there is a case for an early and not extensive operation on the antrum; and believing as he does that it is doubtful whether the mucosa can ever return really to normal when once it has got to the stage of chronic empyema, he recommends indications for drainage based on the repetition of a convincing chain of circumstantial evidence rather than a belated positive result of an exploratory puncture.

Edinburgh Medical Journal

38: 501-560 (Sept.) 1931

*Cardiac Output and Oxygen Utilization in Some Types of Heart Disease. I. Harris and I. J. Lipkin.—p. 501.
An Analysis of Bacterial Antigens on Basis of Chemistry and Function. J. M. Alston.—p. 522.

Cardiac Output and Oxygen Utilization.—Harris and Lipkin state that apart from gross heart failure it is impossible to differentiate between a normal and a diseased heart from cardiac output determinations alone. Cardiac output values obtained under resting and working conditions are of use in estimating the degree of cardiac reserve power: the smaller the difference between the two, the lower is the reserve power. Cardiac output stands in inverse ratio to the percentage utilization of oxygen. This is particularly pronounced when the cardiac output values after work in relation to those under resting conditions are compared with the percentage of increase of oxygen utilization work. The increase of stroke volume that results from work in relation to the increase in utilization of oxygen gives a clear indication in regard to the degree of reserve power of the heart. The normal individual reacts to exertion as far as possible by an increase in stroke volume, the diseased more by an increase in pulse frequency. A high percentage of oxygen utilization is a characteristic feature of auricular fibrillation.

Journal of Laryngology and Otology, Edinburgh

46: 661-728 (Oct.) 1931

Methods of Radiography in Sinus Affections. R. Mittermaier.—p. 661.
Skiagrams in Diseases of Maxillary Sinus: Their Surgical and Pathologic Significance. R. G. Brown.—p. 670.

Journal of State Medicine, London

34: 559-619 (Oct.) 1931

Rheumatism of Childhood. J. M. Beattie.—p. 559.
Health of Workers in Engineering Industry. A. Massey.—p. 569.
Problems of Cancer Treatment and Research, with Especial Reference to Tumor Immunity. T. Lumdsen.—p. 577.
Leprosy, Its Prevention and Control. R. G. Cochrane.—p. 583.
Some Points in Pathology of Filariasis: Filaria Bancrofti, Loa Loa and Onchocerca Volvulus Infections. G. C. Low.—p. 594.
Some New Antiseptics. C. E. Coulthard and F. L. Pyman.—p. 599.
Purification and Valuation of Tuberculin. E. Küster.—p. 605.
Prophylaxis of Rickets by Means of Irradiated Milk. K. Scheer.—p. 607.
Recent Investigations in Syphilis Immunity. R. Prigge.—p. 610.

Medical Journal of Australia, Sydney

2: *283-312* (Sept. 5) *1931*

Treatment of Uterine Cancer. R. Fowler.—p. 283.
Some Aspects of Pathology of Uterine Carcinoma. R. A. Willis.—p. 293.
Treatment of Uterine Cancer. W. Cuscaden.—p. 297.

2: 313-344 (Sept. 12) 1931

Modern Methods in Urologic Surgery. H. Mortensen.—p. 313
*Cancer of Rectum. L. M. McKillop.—p. 317.
Id.: B. Kilvington.—p. 320.
Physiology of Alimentary Tract Considered in Relation to More Common Disorders Met with in Radiologic Practice. D. J. Thomas.—p. 322.
Scope of Diet Therapy. Mabel G. Flanley.—p. 326.

Cancer of Rectum.—McKillop believes that cancer of the rectum is in some way often associated with polyosis of the pelvic colon and rectum and it is highly probable that constipation, by encouraging the effect of chronic irritation of retained excreta in a bowel possessing such adenomas, is an influencing factor of high degree in the production of rectal cancer. Early and carefully done colostomy is almost an absolute necessity in the treatment of rectal cancer. No attempt should be made in cancer of the anus or lower segment of the rectum to preserve the external sphincter, except in very early cases in which the patients are treated by radium. Every patient suffering from rectal bleeding, hemorrhoids, rectal discomfort or chronic sacral backache, especially if associated with early morning looseness of the bowels, should be given the benefit of a thorough rectal examination by the finger if not by a proctoscope. The ideal treatment for cancer of the pelvirectal junction and body of the rectum is excision in one (or two) stages by the method of Miles. The method next to be preferred is colostomy followed by thorough exposure of the rectum by the coccygeal approach and the planting around the growth of heavily screened radium needles. The best treatment for epithelioma of the anus, if seen very early, is by interstitially applied radium, followed by surface application through a paste mold. If, however, the patient is seen late, colostomy should be done and radium needles buried to give a total irradiation of about 6,000 milligram hours. Two weeks later, high voltage roentgen therapy should be applied to the inguinal lymph nodes.

Practitioner, London

127: 413-508 (Oct.) 1931

Value of Blood Examination in Obscure Cases. A. Piney.—p. 413.
Blood Transfusion. G. Keynes.—p. 422.
Agranulocytosis and Aplastic Anemia as Varieties of Bone Marrow Failure. F. P. Weber.—p. 430.
Simple Achlorhydric Anemia and Allied Forms of Anemia. L. J. Witts.—p. 439.
Treatment of Pernicious Anemia. W. Brockbank.—p. 449.
Anemias of Infancy and Childhood. A. C. Hampson.—p. 460.
Glandular Fever or Infective Mononucleosis. S. E. F. Gooding.—p. 468.
Value of Tryparsamide. J. P. Steel.—p. 484.
Treatment of Streptococcal Septicemia. C. E. Jenkins.—p. 492.

South Africa M. Assn. Journal, Cape Town

5: 513-548 (Aug. 22) 1931

Three Interesting Lung Cases. F. Forman.—p. 515.
Agglutination-Curve in Tick Bite Fever. A. Pijper and Helen Dau.—p. 519.
Curable Eyestrain. N. A. Stutterheim.—p. 522.
Diseases of Eye in Relation to General Medicine. M. M. Posel.—p. 527.
Salvarsan and Optic Atrophy. E. A. Scale.—p. 528.

China Medical Journal, Shanghai

45: 815-922 (Sept.) 1931

*Memorandum on Present Position of Prophylaxis Against Leprosy in Relation to Recent Improvement in Treatment. L. Rogers.—p. 815.
A Leper Colony: Its Management and Maintenance. R. M. Wilson.—p. 827.
Early Diagnosis of Leprosy. E. Muir.—p. 835.
Application of Gouin's "Réaction Leucocytaire" in Diagnosis of Leprosy. F. Reiss.—p. 840.
Notes on Leprosy in the Three Eastern Provinces. K. Y. Yu and H. W. Y. Taylor.—p. 855.
Leprosy in Yunnan. C. M. Galt.—p. 867.
Leprosy in Swatow District. E. H. Scott.—p. 869.
Notes on Incidence of Leprosy in Less Known Areas. J. L. Maxwell.—p. 875.
Preliminary Note on Leprosy in Szechwan. C. Canright and H. G. Anderson.—p. 880.
Systematic Treatment of Leprosy: Inpatients. L. F. Heimburger.—p. 886.
Systematic Treatment of Leprosy: Outpatients. N. D. Fraser.—p. 890.

Prophylaxis Against Leprosy.—Rogers deals with the principles which he believes should guide the application of present knowledge to the great problem of reducing and eventually stamping out leprosy from any country. In view of the great variations in the local conditions, each country must decide for itself how far these principles are applicable to their own conditions; but the nearer any area can get to carrying into effect the principles mentioned, the better the results will be. The immense stimulus given to research on leprosy by the discovery of an improved treatment will doubtless provide still more effective methods before long, and at the present transitionary period it will probably be advantageous for different countries to adopt somewhat varying methods in accordance with local conditions. The author would even welcome such an area as South Africa adhering to rigid compulsory methods, as such would furnish a valuable control to more modern methods in use elsewhere.

Annales de Médecine, Paris

30: 97-192 (July) 1931

*Primary Septicemia Due to Bacillus Funduliformis. P. Teissier, J. Reilly, E. Rivalier and V. Stefanesco.—p. 97.
Contribution to Study of Dermatomyositis: Case. G. Marinesco, S. Draganesco and E. Façon.—p. 145.
Treatment of Subacute and Chronic Malignant Endocarditis. M. Chiray, M. Liégeois, R. Benda and G. Albot.—p. 163.
Apiol as Cause of Fatal Anuric Intoxication. P. Trillat and H. Thiers.—p. 176.

Primary Septicemia Due to Bacillus Funduliformis.—Teissier and his co-workers state that Bacillus funduliformis was first isolated by Hallé in 1898. Many workers found the organism associated with other bacteria in gangrenous processes, but not one succeeded in demonstrating its specific pathogenicity and there was no mention in the literature regarding the rôle of the organism in human and experimental septicemias. In 1926 the authors isolated the anaerobe from a fatal case of septicemia in which the hepatic and blood systems were involved. At that time they considered the observations interesting because exceptional. But, later on, the same organism was isolated in three other cases of septicemia. The organism first enters the pharyngeal and tonsillar mucosa and is then carried in the blood stream, setting up foci of circumscribed necrosis in the lungs and again as a consequence of a subpleural microbic embolus causing suppuration of the pleura; or yet again the infection may be carried to the osteo-articular system and muscle sheath. The symptoms do not differ from septicemias due to various aerobic organisms, namely, fever, chills, acceleration and irregularities of the pulse, lowering of the arterial tension, alteration of the facies and dryness of the tongue; these symptoms are followed by rapid localization of metastases, with increase in the size of the liver, appearance of icterus and hemorrhages in the wake of the microbic multiplication in the hepatic parenchyma; there is a progressive accentuation of the dyspnea and a sudden local pain in one side denoting the spread of the infection to the pleura or the lung. B. funduliformis causes a massive gangrenous process in the parenchyma but does not cause the putridness which characterizes gangrenous infection. The latter eventuality is a function of other anaerobes that have the property of fermenting albuminoid matter and producing volatile bodies to which the odor is due. Oligocythemia in two of the cases reported was attributed to the high hemolytic property of the organism. Neutrophil polymorphic leukocytosis accompanied the oligocythemia. The prognosis of septicemias due to B. funduliformis is grave; three of the four patients succumbed. Hepatic and pulmonary localizations are the most serious; these are fatal within a short time (eight days, thirteen days, five weeks). Bacteriologic studies proved the organisms to be heterogeneous in regard to fermentation, bile solubility, antigenic power, but homogeneous in regard to their pleomorphic, nonproteolytic and hemolytic characteristics. The variations in morphology consisted of (1) spherical, giant forms, appearing and disappearing according to the physical conditions of the culture mediums and more often a characteristic of certain strains; (2) filamentous forms of tardy appearance and great vitality, probably a benign expression of microbic senescence. The organisms were highly virulent for animals, especially rabbits. Guinea-pigs, rabbits and monkeys were all used in the experiments. The animal experiments prove that B. funduliformis is organ-specific, having a predilection for the corresponding organs in animals as well as man. The authors have gone to great length to prove that all generalized monomicrobic infections developed in the absence of an initial gangerous focus are due to an anaerobic organism like B. funduliformis and that many septicemias attributed to other forms in the past may have been due to nonrecognized pleomorphic forms of B. funduliformis.

Gynécologie et Obstétrique, Paris

24: 97-192 (Aug.) 1931

Tuberculosis of Neck of Uterus. S. Bonnet and H. Bulliard.—p. 97.
*Relation of Uterine Fibromas to Arterial Hypertension. M. Vassitch.—p. 126.
Effect of Salt-Free Diet on Labor. J. Hofstein and Petrequin.—p. 133.
Dystocia Caused by Peculiar Accumulation of Fat in Small Pelvis. S. Tassovatz.—p. 139.
Pathogenesis of Vomiting in Pregnancy. J. N. Polonsky.—p. 143.
Pertussis Convulsiva Gravidarum Toxica. A. A. Lebedeff.—p. 150.

Relation of Uterine Fibromas to Arterial Hypertension.—Vassitch studied conditions of arterial tension in patients having uterine fibromas and in other patients not having fibromas and chosen at random. His observations confirm the belief in the frequent coexistence of uterine fibromas and arterial hypertension. He considers the action of uterine fibromas in arterial tension as a mechanical action, a "peripheral barrage" of some sort. It is also to the peripheral barrage through tumor compression that one has in the past attributed vascular and especially cardiac accidents in women with uterine fibromas. The author believes that the theory that the compression of the ureters by large fibromas influences renal functioning and reacts contrecoup on the cardiovascular circulation does not withstand examination of the facts. Six fibroma cases showed normal renal functioning with no albumin in the urine, or marked increase in the blood sugar; and in five of these, the arterial tension also proved to be normal. The author's researches do not substantiate the hypothesis that the fibrous tumor through its simple development leads to arterial hypertension. As for the hypothesis that considers the indirect action, through the endocrine glands, the author asserts that castration is always followed by a slight increase in arterial tension regardless of whether it is performed for adnexal disease or for uterine fibroma. His researches do not substantiate the hypothesis that hypertension is due to the castration. The age factor was considered and proved to be unimportant. Suppression of hemorrhage causes an increase in arterial tension. The author hesitates to contradict the possibility of a causal relationship between arterial tension and uterine fibromas; however, he believes that their frequent coexistence should be considered as an evolutionary coincidence, on the same substrata, of two disorders having analogous affinities.

Presse Médicale, Paris

39: 1261-1276 (Aug. 26) 1931

Recurring Luxation of Shoulder. J. Murard.—p. 1261.
*Luteoma: Ovarian Virilism. A. Cosacesco, St. Draganesco, M. Georgesco and G. T. Dinischiotu.—p. 1264.
Pulmonary and Laryngeal Tuberculosis. M. Aubry and L. Brodiez.—p. 1267.

Luteoma: Ovarian Virilism.—Cosacesco and his co-workers after two and a half years of study conclude that a physiologic suppression of folliculin as a result of an abnormal excess in the corpus luteum may cause, besides amenorrhea, a profound modification of sexual characters similar to the changes following castration. Surgical intervention and the removal of a luteinic tumor results in the disappearance of the virilism and the disease condition with a return to normal of the ovarian secretion. Many human and animal experiments are discussed. The authors report one personal case and review two cases from the literature. They agree with some of the recent beliefs that suprarenal and ovarian virilism have a common origin; that the corpus luteum of pregnancy is a true transitory suprarenal cortex, and that in ovarian and suprarenal virilism there is a common anatomic element; namely, the cell with lipoidal granules.

39: 1309-1324 (Sept. 5) 1931

*Oscillometric Determination of Mean Blood Pressure. H. Vaquez and D. M. Gomez.—p. 1309.

Oscillometric Determination of Mean Blood Pressure.—In their studies, Vaquez and Gomez examined the column of blood between the mouth of the axillary artery in the innominate trunk and the segment of artery compressed by the cuff of an oscillometer. The column of blood is subject to two opposing forces: the pressure that exists in the innominate artery and the counterpressure of the cuff, which tends to press together the walls of the artery and oppose the course of the blood. If the blood pressure is above the counterpressure the blood penetrates under the cuff, separates the walls of the artery and forms what the authors designate as a wave of separation (une ondée de décollement); when on the contrary, for example during diastole, the counterpressure becomes higher than the blood pressure, the walls of the segment of the compressed artery tend to come together, expelling the blood that they contain and forming a wave of union (une ondée d'accolement). The oscillometer can record only the changes in the volume of that segment of the artery compressed by the armlet, changes due to the waves of separation and of union in that particular segment. The phenomena of oscillation should record on the sphygmogram the slightest changes in counterpressure. The authors worked on the assumption that the mean pressure coincides with the maximal oscillation or the oscillometric pressure. In practice it is not always easy to distinguish the maximal oscillation, since it is mingled with a series of other oscillations of the same amplitude; this results in a plateau curve. The authors' experiments were directed to add to the proof that the mean pressure parallels the oscillometric index. The index represents the volumes of the maximal waves of union and separation—the waves produced when the counterpressure has the same value as the mean dynamic pressure. When the oscillations present the same amplitude for various successive values of counterpressure, the oscillographic curve becomes a plateau curve. The maximal oscillation for fixing the mean is in that case quite impossible. These plateau curves are observed especially when the differential pressure or the difference between the extreme pressures is great. The plateau curve occurs in aortic insufficiency of the Corrigan type or the Adams-Stokes syndrome when there is marked slowing of the heart beats. To avoid a plateau curve, the authors advise an increase in the size of the segment of the artery compressed, which may be attained by increasing the width of the cuff. In this way the waves of separation are of a sufficient size to be recorded completely and there is enough blood in the segment to furnish waves of union. The oscillometric index makes it possible for the first time to determine the mean arterial pressure at the patient's bedside.

Revue Française de Gynécologie et d'Obst., Paris

26: 353-416 (July) 1931

*Radium Therapy in Noncancerous Diseases of Uterus. R. Koenig and F. Chatillon.—p. 353.

Treatment of Cancer at Geneva Gynecologic Clinic from 1914 to 1930: Radium Therapy in Cancer of Cervix. E. Held.—p. 373.

Primary Face Presentations: Spontaneous Correction; Two Cases. F. Chatillon.—p. 394.

Interstitial Pregnancy Occurring After Removal of Adnexa for Extra-Uterine Pregnancy. E. Held.—p. 401.

Radium Therapy in Noncancerous Diseases of Uterus.—Koenig and Chatillon, after discussing results of their sixty cases, make the following observations and conclusions: In hemorrhagiparous infections of the uterus (hemorrhagic metropathies and small fibromyomas), radium therapy constitutes a method of choice in the treatment of persons close to the menopause who can be cured by permanent suppression of the menses. In young women, this method of treatment can be used only in extremely exceptional cases. However, when all hemostatic means have failed, radium therapy can give excellent results in avoiding hysterectomy. A small dose of radium may sometimes regulate the menses and permit pregnancy itself. But the latter eventuality cannot be considered as certain; and in view of the risks taken in the issue of conception, this means should not be made a problem for experimentation. It is sufficient to apply a single dose of radium, with a dose regulated to obtain the desired result in whatever concerns the female before menopause. The method permits all gynecologists to treat these infections themselves, without being obliged to acquire expensive apparatus for roentgen therapy. Amenorrhea is obtained in from 95 to 99 per cent of the cases. The authors insist on the importance of an exploratory curettage before any radium is applied. Used in this way, radium implantation can be recommended to all gynecologists. They have in their hands a sure, inoffensive and rapid method which gives unfavorable results in only extremely rare instances.

Lotta Contro la Tubercolosi, Rome

2: 811-928 (Aug.) 1931

Clinical and Roentgenologic Observations in Cases of Early Tuberculous Infiltrate. U. Rabbiosi.—p. 811.

Atropine and "Insatiable" Pneumothorax. M. Lucacer.—p. 830.

*Direct Roentgen Therapy in Pulmonary Tuberculosis. E. Trepiccioni and A. di Natale.—p. 842.

*Need of Systematic Roentgenologic Examinations of Thorax of Prostitutes in Brothels. M. Romagnoli.—p. 860.

Direct Roentgen Therapy in Pulmonary Tuberculosis.—Trepiccioni and di Natale report that, in the fourteen cases of pulmonary tuberculosis in which they applied roentgen rays therapeutically, six of the patients did not evidence benefit, six showed improvement in the local and general conditions, two revealed a clinical and roentgenologic clearing up of the cavities present and the disappearance of the tubercle bacillus from the sputum. These two patients had undergone phrenic exeresis about three months before the beginning of the irradiations. In order to evaluate the efficacy of the roentgen treatment in these cases, and particularly in the last two cases, the question must be considered as to whether the healing of the cavities was spontaneous or whether it should be ascribed to the action of the phrenic exeresis. The authors exclude the spontaneous disappearance of the cavities in these cases because: 1. Spontaneous disappearance occurs usually in cavities of recent formation; in these patients the cavities were of long standing. 2. It requires a long time. 3. It is exceptional, although it does occur, as has been shown by roentgenologic researches in series. Dr. Righi (in their institute) observed only three spontaneous recoveries from cavities in about 300 patients with pulmonary tuberculosis and definitely diagnosticable cavities. As regards the action of phrenic exeresis, the fact that, three months after the operation, in these two cases clinical or roentgenologic changes of the cavities were not observed is fairly good evidence that the intervention was not sufficient to bring about of itself the recovery, although it is impossible to exclude absolutely a late favorable action. To the authors it appears more logical to assume a combined action of phrenic exeresis and roentgen therapy, in the sense that the phrenicectomy, distending the walls of the cavity, favored the intense process of local sclerosis stimulated by the complex action of roentgen rays. It will be of interest to learn whether in the further observations that have already been begun the results obtained in these two cases described will be confirmed.

Roentgenologic Examinations of Thorax of Prostitutes.—Romagnoli examined 100 prostitutes in brothels, with the following results: open pulmonary tuberculosis with positive expectoration, 4 per cent; pulmonary tuberculosis without expectoration or with negative expectoration, 10 per cent; external tuberculous glandular lesions, 5 per cent; suspected adenopathies, 10 per cent; predisposed, 2 per cent. Of the 100 prostitutes examined, 85 per cent were syphilitic; 25 per cent had gonorrhea, and 4 per cent had heart disease. The author thinks that if public prostitutes throughout the country could be carefully examined and properly treated, it would constitute a marked advance in the crusade against tuberculosis.

Riforma Medica, Naples

47: 1287-1320 (Aug. 24) 1931

Mutual Effects of Sugar Content of the Blood and Effusion Fluids of Serous Membranes. G. Pansini and G. Caruso.—p. 1287.
Autolytic Peritonitis After Transplantation in the Abdomen of Organs and Tissues. D. Vallone.—p. 1293.
*Clinical Experiences with Therapeutic Action of Sugar Combined with Insulin in States of Cardiac Insufficiency. G. Macchioro.—p. 1297.
Ectopic Pregnancies. B. Sorrentino.—p. 1313.

Therapeutic Action of Sugar Combined with Insulin in States of Cardiac Insufficiency.—Macchioro states that, considering as a whole the patients treated, the outstanding fact was the feeling of subjective improvement noted by nearly all the patients after the second or third day of treatment, and sometimes even after the first day, although objectively (pulse, diuresis) the changes in a favorable sense were not so marked as to explain or justify such subjective improvement. The improvement was expressed by the patients with almost identical terms: diminution of the sense of oppression and shortness of breath, and consequently greater ease and freedom of respiration. In view of its harmlessness and practical value, the author concludes that the treatment in question deserves to be tried on a large scale in cardiac insufficiency. In the majority of the cases, the author did not observe variations of blood pressure worthy of note. The twenty-four hour specimens of urine showed a quantitative increase in nearly all cases. In a number of cases in which the tachycardia was marked, the sugar-insulin treatment relieved in an evident manner that pathologic manifestation.

47: 1323-1356 (Aug. 31) 1931

*Influence of Roentgen Irradiation of Thyroid on Deaminizing Functions of Liver in Exophthalmic Goiter. L. Alzona.—p. 1323.
Therapeutic Action of Italian Variety of Plant Periploca Greca in Heart Disease. D. Vaccari.—p. 1328.
Clinical Experiences with "Avertin" Anesthesia. E Ettorre.—p. 1333.

Influence of Roentgen Irradiation of Thyroid on Deaminizing Functions of Liver in Exophthalmic Goiter.—Alzona concludes from his detailed study of eight cases of exophthalmic goiter that: Irradiations of the thyroid with inhibitive doses in patients with exophthalmic goiter cause inconstant changes of the amino-acidemic curve provoked. Such changes, when present, indicate a variation in the functioning of the liver in exophthalmic goiter patients, as a result of therapeutic roentgen applications, in the sense of a diminished deaminizing functioning of that organ. There is not a parallel relation between the intensity of the variations of the amino-acid curve and the improvements secured from the roentgen treatment. Such changes show that a diminished functioning of the thyroid is usually associated with a lessened efficiency of the deaminizing function (and hence of the hepatic function), which fact confirms in a measure the theory recently proposed by Pende concerning hepatothyroid synergism.

But. de la Soc. Catalana de Pediatria, Barcelona

4: 49-111 (April-May and June) 1931. *Partial Index*

*Clinical Value of Determination of Chloride Content of Cerebrospinal Fluid. M. Torelló Cendra.—p. 58.

Clinical Value of Determination of Chloride Content of Cerebrospinal Fluid.—Torelló Cendra made determinations of the chloride content of the cerebrospinal fluid in twenty-four samples of the fluid in normal and in pathologic conditions, to ascertain the clinical value of the test. His calculations were made on a basis of the examinations made on 1 or 2 cc. of the fluid. He reaches the following conclusions: The average normal figure is 7.1 Gm. of chloride per thousand cubic centimeters of cerebrospinal fluid. Oscillations of from 7 to 7.5 Gm. may be considered as being within normal limits. As a rule, meningitis is associated with a diminution of the chloride content in the cerebrospinal fluid, which is more noticeable the longer the disease lasts. An accentuated hypochlorurorrhachia (below 6 Gm. of chloride per thousand cubic centimeters of the fluid) is not an absolute indication of tuberculous meningitis. The determination of the chloride content of the cerebrospinal fluid may be of value for the differential diagnosis between tuberculous granulemia of a meningeal type and tuberculous meningitis. Tuberculous granulemia undergoes evolution with higher figures than those observed in tuberculous meningitis. In cases of chronic encephalopathy in infants, the diminution of the chloride content seems to be caused by anatomicopathologic cortical and meningeal lesions. In a case of granulemia of a meningeal type the graphic records of the chloride and albumin contents of the cerebrospinal fluid showed diminution of the chloride content and increase of the albumin from the beginning of the meningeal symptoms. However, whenever the convulsions appeared, the chloride content increased and the albumin content diminished. The author suggests that it would be of interest to study the possible relationship between the convulsions, the accidental hypertension of the cerebrospinal fluid and the temporary increase of the chloride content.

Prensa Médica Argentina, Buenos Aires

18: 389-436 (Aug. 30) 1931

Carcinoma of Ovary with Metastasis to Pleura and Peritoneum; Fibroma of Uterus: Case. T. Castellano and S. R. Amuchástegui.—p. 389.
**Diffuse Bone Endothelioma.* J. Diez.—p. 396.*
Fat Necrosis of Subcutaneous Tissues. D. Mosto.—p. 414.
Multiple Sclerosis Associated with Hemiplegia; Cerebrospinal Fluid in Multiple Sclerosis. A. F. Camauër and T. Negri.—p. 427.

Diffuse Bone Endothelioma.—Diez describes in detail the roentgen changes caused by diffuse bone epithelioma, by means of which the differential diagnosis between the tumor and other malignant bone diseases, especially bone sarcoma, may be made. The differential diagnosis between diffuse bone epithelioma and bone sarcoma is important both for the prognosis of the patient's life and for the treatment. Diffuse bone endothelioma, contrary to bone sarcoma, runs a slow evolution, and when early diagnosed is amenable to treatment. After an evolution of from two to three years, metastases appear indicating the proximity to the cachectic period. The treatment that gives the best results is the amputation of the affected limb. Next in importance is radium therapy and roentgen therapy, which should be resorted to in cases in which the performance of surgical exeresis is impossible owing to the localization of the tumor. The amputation of the limb should be preceded by (1) roentgen examination of the thorax and of the skull to be sure that metastases are not present, and (2) by biopsy, to inform one of the imperative necessity of performing the amputation as a result of the nature of the tumor. When metastases exist, the case should be considered too advanced for any benefits from operation. The possibility that biopsy may favor the development of metastases in case that the tumor is bone sarcoma is not as yet entirely proved. Still, even if proved, if the diagnosis is positive for bone sarcoma nothing is lost since bone sarcoma is always fatal, while, on the other hand, if the diagnosis is positive for bone epithelioma, the immediate amputation of the limb will probably save the patient's life. The author reports two cases in patients aged 14 and 26, respectively. In the first case the tumor developed in the first lumbar vertebra. It was removed after a laminectomy from the eleventh dorsal to the third lumbar vertebra. At the operation, destruction of the left transverse process of the first lumbar vertebra and infiltration to the adjacent tissues were found. The patient died three months after the operation in a cachectic condition. In the second case the tumor developed in the left humerus. The arm was amputated. Metastases did not appear after the operation. The patient is at present still in good condition. The macroscopic and microscopic observations of the tumor tissues from these two cases are explained in detail, with illustrations, in the text of the article.

Beiträge zur Klinik der Tuberkulose, Berlin

78: 1-242 (July 22) 1931

Protective Inoculation of Guinea-Pigs with B C G. H. J. Tiedemann and E. A. Schnieder.—p. 1.
Supposed Causes of Catastrophy in Lübeck. A. Komus.—p. 13.
Investigations on Filtrable Forms of Tubercle Bacillus. D. Szüle.—p. 18.
Does the Tuberculin Susceptibility of Guinea-Pigs Indicate the Existence of the Ultravirus? D. Szüle.—p. 27.
Question of Specificity of Macroscopic Changes Ascribed to Filtrable Forms. D. Szüle.—p. 32.

*Acute Miliary Tuberculosis with Aspects of Severe Blood Disease. Hertha Gottlieb.—p. 36.
Epidemiology of Circumscribed Acute Infiltrative Tuberculosis. R. Herrmann.—p. 45.
*Indurative Tuberculosis of Bronchial Lymph Nodes as Cause of Severe Hemoptysis in the Aged. A. Arnstein.—p. 55.
Specificity of Focal Reaction: Investigations on Allergic and on Allergic-Parallergic Persons. H. Fernbach and Gertrud Herzger.—p. 64.
Clinical and Experimental Investigations on Pathogenesis and Course of Hematogenic Tuberculosis and Its Relations to Apical Tuberculosis and Early Infiltrate. I. Steiger.—p. 87.
*Value of Phrenic Exeresis as Independent Intervention in Pulmonary Tuberculosis. F. O. Höring.—p. 105.
Influence of Patients with Open Tuberculosis on Members of Their Families. H. Söllinger.—p. 116.
Results of Examinations of Persons Who Come in Contact with Tuberculous Patients, with Especial Consideration of Roentgenologic Observations. J. E. Kayser-Petersen.—p. 140.
Pregnancy and Tuberculosis. Ilse Liers.—p. 170.
Id.: K. Riemer.—p. 184.
Working Capacity of Patients with Pulmonary Tuberculosis. I. Rüttgers.—p. 197.
Behavior of Cholesterol Content of Serum During Sojourn in High Mountains and Its Relation to Tuberculosis. A. Behrmann.—p. 214.
Inhalation of Cement Dust and Spreading of Tuberculous Infection in Lungs of Guinea-Pigs. J. Grober and G. Riemerschmid.—p. 222.
Thorough and Careful Disinfection of Wool Blankets. M. Hüttig.—p. 232.
Gold Therapy of Pulmonary Tuberculosis. R. Lohmann.—p. 237.
Aspects of "Benign" Intrathoracic Tumors. O. Wiese.—p. 240.

Acute Miliary Tuberculosis with Aspects of Severe Blood Disease.—Following a review of the literature of the concurrence and relations of blood diseases and miliary tuberculosis, Gottlieb gives the clinical history of a girl, aged 14, in whom the examination of the blood revealed severe anemia, leukopenia and thrombopenia. The disease was diagnosed as aleukia hemorrhagica. A blood transfusion of 600 cc., roentgen irradiation and injection of neoarsphenamine had no lasting effect and the girl died. The necropsy revealed a miliary tuberculosis. From the anamnestic data, which indicated an increasing paleness, and from the course of the fever it was impossible to recognize the miliary tuberculosis, the more so because the roentgenogram of the lungs did not give clear indications for a miliary tuberculosis, and also because the unusual blood picture diverted attention from other symptoms. The clinical symptoms, namely, the severity of the leukopenia, anemia and thrombopenia, the failure of the therapy and the fulminant and febrile course, indicated hemorrhagic aleukia or lymphatic leukemia with aleukemic hemogram; however, the necropsy showed that these blood diseases must be excluded, for the bone marrow was red, whereas in aleukia it is yellow. Acute leukemia could likewise be excluded since neither the macroscopic nor the microscopic observations gave indications for its existence. The fact that the greatest number and the most recent of the tubercles were in the liver, the spleen and the lymph nodes, that is, in the reticulo-endothelial system, and the abnormal accumulation of leukocytes around many of the tubercles may explain the marked leukopenia. The author ventures the following explanation for the behavior of the leukocytes and for the peculiar hemogram: At the beginning of the miliary dissemination there still was an adequate number of leukocytes, but when the organism was suddenly flooded with tubercle bacilli the leukocytes were needed for the protection of the organism. The bone marrow was not able to replace the great loss of leukocytes in the circulating blood, because it had been impaired by the toxic effects of the tubercle bacilli. The inadequacy of the leukopoietic apparatus soon spread to the erythropoietic apparatus and anemia was the result. The unusual paleness of the girl had been noticed long before the clinical manifestations of miliary tuberculosis, and the anemia was the first sign of a severe poisoning of the organism. The author concludes that this blood disease can be considered as an aregenerative anemia caused by the toxic action of a miliary dissemination of tubercle bacilli, and that this blood disease is extremely rare.

Indurative Tuberculosis of Bronchial Lymph Nodes as Cause of Severe Hemoptysis in the Aged.—Arnstein shows that in the aged, particularly in old women, hemoptysis as the result of simultaneous perforation of a shriveled or softened tuberculous or anthracotic lymph node into the bronchial tree and into a blood vessel is not at all a rare occurrence. In most cases this form of hemoptysis has a fatal outcome. However, in some cases there are shorter or longer remissions, until finally a fatal hemorrhage sets in. The author advises that if pulmonary hemorrhage develops in old persons and it cannot otherwise be accounted for, this condition should be thought of. Because of the scarcity of symptoms of the underlying disease of the lymph nodes the diagnosis is usually difficult. Positive physical signs and a positive roentgenogram are exceptions. On the basis of reports in the literature and of ten case histories given in this paper the author directs attention to the following signs that are helpful in the diagnosis: absence of another causal disease, circumscribed percussion, sensitivity of the lower portion of the sternum, difficulty in swallowing, irritation of the vagus, and expectoration of dark masses.

Phrenic Exeresis in Pulmonary Tuberculosis.—Höring shows that phrenic exeresis alone fulfils only partially the requirements of active treatments of tuberculosis and that it is inferior to other methods of collapse therapy. He emphasizes that the aim of collapse therapy should not be merely improvement but rather complete cure. Observations in fifty-six cases disproved the frequently claimed favorable influence on caverns of the upper lobes. The author concludes that phrenic exeresis as an independent intervention has only a limited applicability.

Dermatologische Wochenschrift, Leipzig

93: 1289-1332 (Aug. 15) 1931. Partial Index

*Hormonal Dermatoses in Women: Preclimacteric and Climacteric Skin Reactions. R. v. Leszczynski and S. Liebhart.—p. 1289.
Dermatitis Artificialis Caused by Glass Wool. S. von Szentkiralyi.—p. 1302.
Fatal Outcome of Dermatitis Exfoliativa Following Arsphenamine Treatment of Paralysis. M. Liebers.—p. 1305.
*Fatality Following Ambulatory Lumbar Puncture. H. Boas.—p. 1309

Hormonal Dermatoses in Women.—Leszczynski and Liebhart discuss dermatoses that result from disturbances in the hormonal equilibrium of women particularly during the premenopausal and the menopausal periods. The pathogenesis of these skin reactions is as yet not entirely clear. It is not known whether they develop by way of the blood or of the nervous system, or whether they are angioneurotic manifestations, toxicodermias, retention or secretion dermatoses. The authors give nine case reports and then discuss the cutaneous manifestations. In all of the cases a severe itching was the dominant symptom. There also existed a predisposition for urticarial skin reactions and usually there was a more or less marked lability of the cutaneous vascular and nervous systems. As the result of the pruritus and of the urticaria, which led to rubbing and scratching, eczematous manifestations developed. Thus the eczema is not primary but secondary, but it is admitted that the toxic neurotic noxa, which causes pruritus and urticaria, may in severe cases cause exudative manifestations such as vesicular eruptions. The authors further discuss the results of the gynecologic examination. In some of the patients the uterus had been extirpated and defective functioning of the hypophysis and of the ovaries could be demonstrated. In two other patients the menopause was premature and in others it was belated. In a girl, the menarche was belated. Hyperthyroidism, and hyperfunctioning or hypofunctioning of the hypophysis and of the ovaries were also noted in some cases. Examination of the blood revealed polyglobulism and hyperglycemia. The patients were also subjected to metabolism tests, and the specific dynamic protein action was determined. The urine was tested for the presence of hypophyseal hormones according to the Aschheim-Zondek method. All these tests are necessary in order to determine a suitable and effective therapy. Hypofunctioning of the endocrine glands can be treated either by the administration of endocrine preparations or by the stimulation of the organ with roentgen rays or diathermy. In case of hyperfunctioning the treatment is more difficult. For the primary hyperfunctioning of an endocrine gland, roentgen irradiation (inhibiting dose) is perhaps the only treatment. In secondary hyperproduction an inhibitory effect can be obtained by the stimulation of the antagonistic endocrine organs.

Fatality Following Ambulatory Lumbar Puncture.—Boas reports the clinical history of a man who died as the result of a lumbar puncture. The fatality was caused by a sepsis following infection of the paravertebral tissues. This is the first case of this type that has been reported, for although fatalities after lumbar puncture have been described before, they were not caused by sepsis but rather by other factors, such as hemorrhage. The reported case is a warning that careful asepsis is an absolute necessity in lumbar puncture, especially in the ambulatorium, to which patients often come in unclean garments.

Klinische Wochenschrift, Berlin

10: *1561-1600 (Aug. 22) 1931*

Pneumonia and Its Pathogenesis. W. Ehrich.—p. 1561.
Demonstration of Suprarenals in Roentgenogram. F. Litten.—p. 1565.
Neuromuscular Changes in Diseases of Thyroid. R. Hansen and O. Voss.—p. 1567.
*Modification of Bactericidal Power of Blood by Mineral Salts. H. G. Scholtz.—p. 1569.
Resorption of Salicylic Acid Through Skin. H. Kionka.—p. 1570.
Encephalitis: Etiology and Treatment with Convalescent Serum. J. Brock. —p. 1574.
*Extrasystole in Children of School Age. M. Leffkowitz.—p. 1577.
Retraction of Blood Clot and Its Clinical Significance. K. G. Katrakis. —p. 1578.
Extract of Egg Yolk: Composition, Antirachitic Action and Influence on Calcium-Phosphorus Metabolism. E. Komm.—p. 1581.
Absence of Relationship Between Irritation of Cardiac Nerves and Formation of Humoral Substance by Vagus. L. Asher.—p. 1584.
Circulatory Processes During Shock. H. Mautner and E. P. Pick.—p. 1584.
Hormonal Influence on Plants and Increase of Hormonal Action by Red Rays. H. Küstner.—p. 1585.
Calcium Tolerance Tests in Scleroderma. S. Rothman and Irene Weiss. —p. 1585.
Surgical Treatment of Duodenal Diverticulum: Case. L. v. Friedrich. —p. 1586.

Modification of Bactericidal Power of Blood by Mineral Salts.—In the introduction, Scholtz points out that the therapeutic value of certain mineral salts has been demonstrated by various investigators, for instance the antiphlogistic action of calcium has been recognized, and intravenous infusions of magnesium sulphate have been found helpful in streptococcus sepsis. The author further reviews animal experiments on the therapeutic action of mineral salts and then describes his own tests on rabbits. The bactericidal index was determined with Wright's method and then the animals were given intramuscular injections of solutions of various salts. After the injections had been continued for five days the bactericidal index was again tested and it was found that injections of the solutions of calcium, potassium or sodium did not increase the bactericidal power. However, in the animals that had been treated with magnesium sulphate the bactericidal index was considerably increased; in one instance it had increased threefold.

Extrasystole in Children of School Age.—After prolonged observation of twenty-six school children, Leffkowitz reaches the following conclusions: Extrasystoles occur in children without heart disease as well as in those with cardiac disorders, but the subjective manifestations of extrasystoles are rarer in children than in adults. Ventricular extrasystoles are more frequent in children than the auricular extrasystoles. The functional capacity of the circulation is not impaired by extrasystoles. Ventricular extrasystoles are of no importance for the development of the heart, and the same is apparently true for auricular extrasystoles. However, in regard to the latter form the observations were limited and a final estimate is therefore not possible. The author considers treatment of extrasystole in children as unnecessary.

10: 1601-1648 (Aug. 29) 1931

Present Status of Knowledge of Relation of Chemism of Cells and of Tissues to Pathology of General Lipoidoses. E. Epstein.—p. 1601.
Determination of Size and Position of Various Parts of Heart During Rest and During Work by Means of Surface Kymograph. J. Arendt and H. Baumann.—p. 1607.
Relations Between Various Functions of Kidney. F. Mainzer.—p. 1609.
Investigations on Acute and Chronic Action of Pain Alleviating Remedies on Tactile Organ of Skin. E. Grünthal and G. E. Störring.—p. 1611.
Methods of Investigations on Blood Platelets. S. Horwitz.—p. 1613.
*Clinical Significance of Chloride Metabolism in Diabetes Mellitus. R. Kühn and L. Witscher.—p. 1616.
Behavior of Vacat-Oxygen in Persons with Circulatory Diseases. F. Kisch.—p. 1618.
Velocity of Blood Stream in So-Called Rheumatic Diseases. L. v. Pap. —p. 1620.
Signa "According to Directions" and Maximal Dose. W. Huebner.—p. 1623.
Demonstration of Cerebral Antibodies in Human Syphilis. J. Steinfeld. —p. 1624.
Idem: Reply to Preceding Article. F. Georgi and O. Fischer.—p. 1625.
Influence of Diet on Elimination of Urine and on Composition of Blood. W. v. Moraczewski and S. Grzycki.—p. 1626.
Investigations on Vaccine Virus. K. Herzberg.—p. 1626.
Eclampsia and Vascular System. E. Klaften.—p. 1627.

Clinical Significance of Chloride Metabolism in Diabetes Mellitus.—Kühn and Witscher show that in the metabolic disturbances of diabetes mellitus not only the metabolism of sugar, protein and fat, but also the chloride metabolism is involved. In all the more severe diabetic conditions there is a hypochloruria. It frequently precedes ketonuria, or, when other symptoms have disappeared, it indicates a latent, still threatening disturbance. In the most severe cases of diabetes mellitus hypochloremia can be demonstrated, and in the majority of these cases the authors also observed a hypochlorhydria or an achlorhydria. These disturbances in the chloride metabolism indicate changes in the tissue conditions, which the authors term "rigid" chloride retention and which they consider as the direct result of the hypofunctioning of the pancreas.

Wiener Archiv für Innere Medizin, Vienna

21: 329-488 (July 15) 1931

Standardization of Male Sex Hormone. W. Schoeller and M. Gehrke. —*p. 329.*
*Relations Between Anterior Lobe of Hypophysis and Generative Glands. W. Hohlweg and M. Dohrn.—p. 337.
Protoplasma Hysteresis and Cyclic Processes. V. Růžička.—p. 351.
Animal Experiments with "Anterior Pituitary Hormone" from the Urine of Pregnant Women and with Substance from Anterior Lobe of Pituitary Body. J. Novak and H. Kun.—p. 359.
Male Sex Hormone and Its Clinical Application. H. Benjamin.—p. 369.
Activation of Underdeveloped Breeding Animals by Increasing Production of Sex Hormone. F. Grüter.—p. 381.
*Influence of Peripheral Circulation on Alimentary Hyperglycemia: Effect of Vasodilator and Vasoconstrictor Measures. R. Loebel.—p. 387.
*Id.: Influence of Heat and Cold on Blood Sugar. R. Loebel.—p. 395.
Relative Insufficiency of Pulmonary Valve in Cicatrizing Processes of Left Upper Lobe. W. Neumann.—p. 403.
Causes of Fever in Bleeding Gastric and Duodenal Ulcers and in Loss of Blood. B. Purjesz.—p. 413.
Action of Mersalyl in Diabetes Mellitus. H. Bix and L. Wechsler.—p. 427.
Erythrocyte Sedimentation Speed During Prolonged Athletic Activity. F. Deutsch and E. Weiss.—p. 439.
Center of Epinephrine Secretion and Nervous Regulation of Blood Sugar. G. Monasterio.—p. 451.
*Changes in Blood Lipoid of Syphilitic Patients. P. Neuda.—p. 455.
Plethysmographic Tests on Changes in Volume of Vessels of Arm Produced by Variations in Pressure of Cuff. E. Schill.—p. 461.
Unusual Aspects of Deficiency Disease: Origin of Avitaminotic Symptoms. H. Abels.—p. 473.

Relations Between Anterior Lobe of Hypophysis and Generative Glands.—Hohlweg and Dohrn observed in rats that castration produces changes in the anterior lobe of the hypophysis. These changes develop irrespective of the age or the sex of the animal, and the changes can be prevented or be made to disappear again in infantile females as well as in infantile males by administration of the female sex (follicle) hormone. The quantities of this hormone that are necessary to produce these effects in females and in males, respectively, are in the proportion of 1 to 12. The experiments also revealed that the ovary of the infantile rat produces one thirtieth of a rat unit of follicle hormone each day. Implantation into infantile female rats of the anterior lobe of the hypophysis from animals that following castration had been given follicle hormone did not produce estrus in these animals. However, the anterior lobe from castrated animals that had not received follicle hormone produced estrus when implanted into infantile rats. The changes in the action of the anterior lobe of the hypophysis following castration could also be observed in ovarian transplantation experiments. Implantation of an ovary into a castrated infantile animal is ineffective when it is done immediately after the castration, but it is effective when done three weeks later, for by this time the anterior lobe already shows the increased activity produced by the castration. From these observations the authors conclude that under normal conditions there are quantitative hormonal relations between the anterior lobe of the pituitary body and the generative glands in that certain quantities of the hormone of the anterior lobe stimulate the production of certain quantities of the hormone of the generative gland and that by direct and indirect reaction of the hormone of the generative gland on the anterior lobe the latter produces only a limited quantity of hormone.

Influence of Peripheral Circulation on Alimentary Hyperglycemia.—Loebel made sugar tolerance tests on persons in whom the extremities were not active, that is in patients with articular disturbances, neuralgias, hemiplegias or fractures, and he found an increased hyperglycemia. When measures were taken which hindered the circulation, such as stasis or elevation of the extremity, the alimentary hyperglycemia was further increased; however, injection of a vasodilator substance reduced the alimentary hyperglycemia. From these observations the author concludes that there is a close relationship between peripheral circulation and alimentary hyperglycemia, and that not only reduced filling (elevation and hemiplegia) but also stasis effects an increase of the alimentary hyperglycemia. Evidently every form of obstruction of the peripheral circulation increases the alimentary hyperglycemia, whereas vasodilator remedies effect a decrease.

Influence of Heat and Cold on Blood Sugar.—Loebel observed that heat in the form of hot baths or of incandescent light baths as a rule influences neither the blood sugar while a person is fasting nor the alimentary hyperglycemia. Occasionally the sugar tolerance is slightly decreased. The formerly generally accepted opinion that heat effects a reduction in the blood sugar content has already been disproved in animal experiments, and it is now no longer tenable for human subjects. The effect of cool baths becomes manifest in an increased sugar content not only while the person is still fasting but also in a more marked alimentary hyperglycemia. This increase in the blood sugar following cold baths is considered by the author to be the result of an impairment of the peripheral circulation.

Changes in Blood Lipoid of Syphilitic Patients.—Neuda points out that the clinical analysis of the iodine tolerance of syphilitic patients indicates qualitative changes of the body lipoids. The chemical analysis of the blood lipoids in normal persons and in syphilitic patients corroborates this assumption. It could be demonstrated that the phosphatides showed an absolute and relative increase in comparison to the total lipoid content, and in some of the cases the total lipoid content was likewise increased. The determination of the iodine number in syphilitic patients revealed an increase of unsaturated fatty acids. It is assumed that the two conditions have a certain relationship in that the qualitative changes of the blood lipoids create a predisposition for the development of unsaturated fatty acids.

Sovetskaya Klinika, Moscow

15: 107-246, 1931

*Indeterminate Sex. N. S. Soloviev.—p. 112.
*Anthrax. L. A. Rosener.—p. 122.
*Spleen and Active Immunity. S. G. Shchedrovitsky, A. M. Korabelnikova and E. K. Lopatina.—p. 136.
*Spleen and Intermediary Metabolism. S. A. Seltser and S. G. Shchedrovitsky.—p. 143.
Creatinine-Creatine in Diabetes. Y. Z. Bernshtein.—p. 154.
Cancer of the Duodenal Papilla. V. L. Mikheleva.—p. 159.
Primary Cancer of Liver: Case. M. G. Salovey.—p. 165.
Statistics of Epilepsy in a Neurosurgical Clinic of Moscow. E. M. Rossels.—p. 172.
Prophylaxis and Treatment of Chronic Epidemic Encephalitis. S. A. Sagal.—p. 197.
Clinical Aspects of Inherited Dystrophies of the Muscularis of the Intestines. V. V. Zikeyev.—p. 207.
Professional Diseases of Aniline Industries. L. S. Latishev.—p. 212.

Indeterminate Sex: Heterosexuality, Bisexuality, Homosexuality.—Soloviev, after a discussion of the literature and a review of three personal case histories, makes the following observations: Sex in man, as well as in animals, can be idiotypical or phenotypical. Idiotypical characteristics are transmitted by genes through X and Y chromosomes. Genetically, sexual tendencies follow the law of Mendel. A polyvalent gene may transmit various characteristics. Sex varies according to the combinations of genes: exterior phenotypical elements (progamous or epigamous) may at times cause sexual perversion as well as tendencies to cyclic sexual variation. The author believes that humoral and endocrine factors are all important in the tendencies governing the determination of sex. Perversion or irregular sexual development, more recently called hermaphrodism, in reality belongs to the network of growth, inheritance tendencies, physical appearance, and other, some not yet definite, properties. Thus, abnormal deviation in sex determination depends on the regulatory function of the chromosome apparatus. Understanding of pseudohermaphrodism and hermaphrodism is at present subject to criticism since the understanding of their relationship to the present knowledge of sex is far from satisfactory. The localization of many sexual dystrophies cannot be determined clinically or anatomically. Individuals that have indications of mosaic sexual inheritance should be grouped under the classification of indeterminate sex. The clinical attack in these instances should be based on the recognized elasticity of sexual characters as well as the probable bisexual nature of the individual.

Anthrax.—Rosener reviews the endemiology of anthrax as well as the Russian local and foreign literature. He declares that the figures for the entire Soviet Union reach the 15,000 to 17,000 mark every year. The old classification recognized four forms, the cutaneous, intestinal, pulmonary and septicemic: the author recognizes only two, the external, cutaneous form (99 per cent) which could become septicemic, and the less frequent, internal hematogenous, septicemic form (1 per cent), which may form metastases in the intestine and lungs, where the hematogenous and necrotic areas may simulate "spontaneous infection." Among ninety-eight of the author's personal cases, 39 per cent of the infections were cattle borne, 25 per cent were derived from animal skins and 36 per cent were of professional origin. There were some instances of infection from insects, flies, spiders and one instance of laboratory origin. Man to man infection was rare. The mortality is 15 per cent in Germany, 22 per cent in Italy, and 14 per cent in Russia. The author, having recourse to specific serotherapy, had been able to lower the death rate to 8 per cent. Localization of the focus of the infection is highly important to the prognosis of anthrax. In most of the author's cases the lesions were localized on the hands, face and neck, and the majority of deaths occurred in infections of the lips and cheeks. Eighty-one per cent of the infections were found among men, 52 per cent in the 20 to 40 age group, 25 per cent in the 40 to 60 age group. The author's bacteriologic observations were positive in only 33 per cent of the cases. He advises physicians, epidemiologists and laboratory workers to wear masks whenever they are in contact with anthrax infection and stresses the importance of research and further study.

Spleen and Active Immunity. — Shchedrovitsky and his co-workers began their study prompted by the many and discordant theories in regard to the relation of the spleen to the endocrine and reticulo-endothelial systems. With emphasis on antibody response, they studied the influence of splenectomy alone and in combination with endocrine gland extirpation Splenectomized rabbits, after varying intervals of time, were castrated and thyroidectomized; other castrated and thyroidectomized rabbits were subsequently splenectomized. Agglutination titers were determined at intervals during typhoid immunization, begun directly and also two, four and six months after operation. Twenty-nine rabbits were studied; sixteen of these were splenectomized, six castrated, five thyroidectomized, and two controls laparotomized; nine rabbits were studied before operation. The observations were as follows: 1. Immunization directly after splenectomy resulted in an agglutinative titer of six to eight or nine thousand (normal control four to five thousand) during the first two to three months after the operation. Subsequently, there was a marked fall in titer similar to that in thyroidectomized and castrated animals in the first two to three months. 2. Thyroidectomy in splenectomized animals led to a fall in agglutinative titer. 3. Castration of splenectomized animals did not change the agglutinative titer. 4. Splenectomy in castrated animals increased markedly the antibody response. 5. Splenectomy was fatal to thyroidectomized animals. 6. The authors admit a close interrelationship between the spleen and the glands of internal secretion. They believe that the spleen has an internal secretion which is antagonistic to the secretion of the thyroid, the true intensifier of antibody response. Extirpation of the spleen, therefore, increased the thyroid function. Similarly the inhibiting influence of castration was probably also due to antagonism and when castration was followed by splenectomy the thyroid function could again be restored.

Spleen and Intermediary Metabolism—Seltser and Shchedrovitsky, after many experiments, draw the following conclusions: 1. Splenectomy in dogs leads to increased thyroid functioning. Thyroid functioning was determined by the Sternberg serum-atropine reaction. Serum of hyperthyroid patients neutralized the atropine and when instilled into the eye failed to give the proper dilatation. 2. Splenectomy increases the alkali reserve of the blood. 3. Splenectomy results in a lowered blood sugar level; the level remains low a long time following operation—an entire year in the authors' experiment. 4. The cholesterol content of the blood increases to high proportions during the second and third months after operation and then goes back to the preoperative level. 5. The calcium content of the blood increases after splenectomy. 6. The peripheral blood picture after splenectomy is changed to one of lymphocytosis. 7. Spleen fed to normal and splenectomized dogs decreases the blood calcium. 8. Spleen fed to normal dogs does not influence the blood cholesterol and blood sugar, but fed to splenectomized animals it increases the sugar and decreases the cholesterol, sometimes below the normal level. 9. The authors believe that the spleen produces a hormone similar to the other glands of internal secretion and that extirpation of the spleen influences the physical chemistry of the blood, resulting in marked organic body changes.

Finska Läkaresällskapets Handlingar, Helsingfors

73: 513-592 (July) 1931

- *Chronic Pancreatitis, Particularly as Complication in Pathologic Conditions of Biliary Tract, in Duodenal and in Gastric Ulcers. R. Ehrström and G. Nylander.—p. 513.
- Acute Disorders of Pancreas: Treatment. L. Peterson.—p. 534.
- Is Accommodation of Significance in Plateau's Phenomenon? Erna Zitting.—p. 569.
- Advances in Roentgen and Radium Therapy During Past Decade. G. A. Wetterstrand.—p. 577.

Chronic Pancreatitis.—Ehrström and Nylander report four cases representing different types of chronic pancreatitis, the first with steatorrhea and diabetes, the second with steatorrhea and ileocecal fistula, the third with jaundice and enlarged gallbladder (Courvoisier's symptom), and the fourth with steatorrhea and hyperinsulism, the primary condition in the first and fourth being gallstones, in the second and third duodenal ulcer. In their fifth case, with multiple gastric ulcers, the primary condition was cancer of the tail of the pancreas.

Hospitalstidende, Copenhagen

74: 781-792 (July 16) 1931

- *Simmond's Disease (Hypophyseal Cachexia). O. J. Nielsen.—p. 781.
- *Delayed Traumatic Disorders of Brain. E. Geert-Jørgensen.—p. 786.

Simmond's Disease.—Nielsen gives an historical review of this disease, discusses the etiology and pathogenesis, and reports three cases believed to be essential hypophyseal cachexia, in the third of which some benefit is being derived from treatment with hypophyseal preparations.

Delayed Traumatic Disorders of Brain.—In Geert-Jørgensen's four cases of organic disorders of the brain related to trauma experienced from nine to fifteen years earlier there is definite information as to trauma and clinical course, and the diagnosis has been verified at necropsy or on operation.

74: 823-834 (July 30) 1931

- *Differential Diagnosis in Disorders of Liver and Biliary Tract. E. Polack.—p. 823.

Differential Diagnosis in Disorders of Liver and Biliary Tract.—The results of 195 galactose tests made by Polack in 135 patients, 97 with disorders of the liver and biliary tract and 40 control patients, confirm his earlier conclusion as to the supremacy of Bauer's test in differential diagnosis. It practically always gives positive results sometime during the course of acute parenchymatous hepatitis and negative results in pathologic conditions localized in the extrahepatic biliary tract. In icteric conditions the result separates medical and surgical forms. As a protracted biliary stasis can secondarily cause injury to the liver parenchyma, the author points to the importance of the timely galactose test in grave icteric conditions which present diagnostic difficulties. In judging the outcome of the test, one should attach greater importance to the galactose values in the urine than to the blood sugar values.

Ugeskrift for Læger, Copenhagen

93: 703-724 (July 2) 1931

- Permanent Results of Treatment for Reduction of Weight. E. Faber.—p. 703.
- *Intravenous Injections of Morphine. H. Iacobæus.—p. 707.
- *Ovarian Hemorrhages with Symptoms Resembling Appendicitis. A. Als-Nielsen.—p. 710.
- Typhoid Epidemic in Institution. F. Ingerslev.—p. 716.

Intravenous Injection of Morphine.—In illustration of the rapid and powerful effect of the intravenous administration of morphine in palliative therapy in cases with excessively violent and constant pain, Iacobæus reports two more cases of inoperable cancer in which this method was used. Nine cases have been previously reported by him.

Ovarian Hemorrhages with Symptoms Resembling Appendicitis.—Als-Nielsen describes ten appendicitis-like cases of pathologic ovarian hemorrhage observed during three years, three from rupture of a corpus luteum, one probably due to ordinary rupture of a graafian follicle with abnormal bleeding, and six to rupture of a follicular cyst. Degeneration with small cysts was found in five cases. In all but two cases the symptoms were characterized by sudden, violent and quickly subsiding pain in the abdomen. The author states that in all of the more than fifty cases of ovarian hemorrhage reported an operation was performed under an erroneous diagnosis. The cases presenting profuse hemorrhages were diagnosed as extra-uterine pregnancy, the others as appendicitis or salpingitis. In cases of solitary cysts resection of the ovary seems to him the natural treatment; in degeneration with small cysts the treatment has usually been limited to cauterization of the ruptured cyst with ignipuncture of the remaining cysts.

93: 747-770 (July 16) 1931

- *Bacteriologic Examinations in Pneumonia and Septicemia. E. Schiødt.—p. 747.
- *Significance of Water Metabolism in Epileptic Attacks. S. Teglbjærg.—p. 754.
- *Bromsulphalein Applied in Liver Function Test in Surgical Material. H. K. Lassen.—p. 759.
- Measurement of Temperature and Diagnosis of Activity of Tuberculosis in Children. R. Kjer-Petersen.—p. 761.
- Threshold Value of Stethoscope. A. Saugman.—p. 762.

Bacteriologic Examinations in Pneumonia and Septicemia.—Out of 87 patients with pneumonia, Schiødt found bacteria in the blood in 13 (15 per cent); of 8 with growth of streptococci, 5 died and of the 5 with growth of pneumococci, 2 died, the total mortality being 54 per cent. Of the 74 patients without growth of bacteria in the blood or with growth of staphylococci (7), 17 died (mortality of 26 per cent). Growth of bacteria from the pleural cavity occurred in 35 cases, 15 with streptococci (10 fatal), 19 with pneumococci (6 fatal), 1 with paratyphoid bacilli (fatal). Culture of the blood in 19 cases with septicemia gave negative results in 7 cases (3 fatal), positive in 12 (10 fatal). Cultures from the sputum from 47 patients with pneumonia showed streptococci in 29 (8 died), pneumococci in 17 (2 died). The entrance of bacteria into the blood stream or the pleural cavity is therefore of grave prognostic significance, with streptococci giving a poorer prognosis than pneumococci.

Significance of Water Metabolism in Epileptic Attacks.—In nineteen epileptic adults without gross neurologic changes in the central nervous system, Teglbjærg found that the ingestion of 2 liters of water daily produced a marked increase in the number of attacks, while limitation of the liquid intake to about 600 cc. daily caused a pronounced decrease in the number.

Bromsulphalein Applied in Liver Function Test in Surgical Material.—According to Lassen's experience the retention of bromsulphalein in the blood affords a close indication of the degree of disease of the liver, so that the development of the disease in one direction or the other can be followed. In only a few cases has the test allowed differential diagnosis. In the majority of cases Rosenthal's test seems to be more sensitive than are determinations of the urobilin and icterus index, but the author believes that the values found in patients with icterus due to stasis should be regarded with some reservation, as the retention of bromsulphalein in the blood is probably partly due to injury of the liver parenchyma itself or at all events injury of the cells by which this substance is eliminated, and partly to